

# MANUFACTURERS' RECORD.

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## The Production of Minerals in the United Kingdom in 1892.

The government inspectors have recently published the figures showing the output of minerals from the mines of the United Kingdom in 1892 worked under the coal mines regulation act. These returns complete the unsatisfactory record of the year. They are quite in harmony with the statistics referring to the production of pig iron and steel which we have recently received, and also with the exports of these manufactures in that year. The coal trade, home and foreign, is undoubtedly the backbone of British industry and commerce. It is absolutely dependent upon it for a large part of its foreign trade in other departments of industry. It is a vast medium of exchange to the nation, and its conservation, so far as is feasible, is of the utmost importance. Great Britain possesses no virgin deposits of fuel unsounded or unworked of any great extent. The resources of the States, and especially of the Southern States, are practically untouched. Many of the seams in the mines of the United Kingdom are most difficult of working, and therefore expensive to produce. With this view of the importance and influence of coal to Great Britain, it is but natural that if the fluctuations in the quantities of the mineral raised are very great, then the trade will be either bad or prosperous in the same ratio, other things permitting. The tonnage of coal raised in 1892 fell behind the figure representing it in 1891 by over 3,500,000, an enormous decline, considering the increase between 1890 and 1891 was about the same amount. The strike-smitten district of Cleveland was, of course, the one which suffered the greatest declension in this respect, the decrease being just 6,000,000 tons, or about equal to the quantity which the miners could have raised had they remained at work for the twelve weeks. The statistics showing the condition of the industry are given as follows:

|                      | 1892.<br>Tons. | 1891.<br>Tons. |
|----------------------|----------------|----------------|
| Durham.....          | 23,834,000     | 29,807,000     |
| South Wales.....     | 31,207,000     | 29,893,000     |
| Yorkshire.....       | 23,190,000     | 22,794,000     |
| Lancashire.....      | 22,356,000     | 22,722,000     |
| Staffordshire.....   | 14,132,000     | 14,325,000     |
| Derbyshire.....      | 11,141,000     | 11,039,000     |
| Nottinghamshire..... | 7,160,000      | 7,221,000      |
| Northumberland.....  | 9,529,000      | 9,331,000      |
| Other districts..... | 11,934,000     | 12,818,000     |
| Scotland.....        | 27,192,000     | 25,423,000     |
| Ireland.....         | 112,000        | 106,000        |
| Total.....           | 181,787,000    | 185,479,000    |

There are few previous periods in which such a marked reduction has taken place. In fact, there have been worse years of trade, with a smaller sinking in coal production, because of the very great decreases that have occurred in the foreign trade of the country, which has affected quantities so extensively, as well as prices. It may be interesting to glance at the past years, when a great contraction has set in in this respect. These are as follows: Between 1866 and 1867 there was a reduction of 7,000,000 tons; 1873 and 1874, 2,000,000 tons; 1877 and 1878, 2,000,000 tons; 1883 and 1884, 3,000,000 tons.

Since the year 1867, therefore, the retrogression in the output of coal has not been of so large an extent until last year. This has been due principally to the closing of

the mines in Cleveland, but the general disturbance of trade, especially in the cotton trade, had undoubtedly very seriously affected what would probably otherwise have been a year of augmented production. Foreign demand, or, at least, foreign supplies, fell off by about 100,000 tons, not a large figure in comparison, and one that indicates evidently that the *raison d'être* of the deficiency was the unsatisfactory condition of the home trade, as well as that of the foreign iron trade of the United Kingdom, which showed a decrease of over 500,000 tons.

It is rather strange, nevertheless, to find that the number of employes at the mines was larger in 1892 than in 1891. For the principal districts the figures are as under:

|                                      | No. workers<br>above and below<br>ground. | Total<br>accidents. |
|--------------------------------------|---|---------------------|
| South Durham.....                    | 65,249                                    | 44                  |
| S. Wales and Monmouth.....           | 117,713                                   | 225                 |
| Yorkshire.....                       | 86,563                                    | 74                  |
| Lancashire.....                      | 81,586                                    | 128                 |
| Staffordshire.....                   | 41,859                                    | 65                  |
| Midland (Derby, Notts,<br>etc.)..... | 69,475                                    | 69                  |
| Northumberland, North<br>Durham..... | 66,511                                    | 73                  |
| Minor districts.....                 | 52,498                                    | 15                  |
| Scotland.....                        | 89,008                                    | 120                 |
| Ireland.....                         | 838                                       | 1                   |
| Total in 1892.....                   | 664,300                                   | 814                 |

Compared with the numbers for 1891, last year there were over 16,000 more workers employed, while the number of accidents had decreased by 107. This is satisfactory, inasmuch as the danger in mining in the United Kingdom rather increases than lessens so far as the physical condition of the mines are concerned, and, therefore, proves a greater vigilance and care on the part of those who manage and supervise.

As regards the production of ironstone there is little to be said. The total naturally exhibits a serious decline, in consequence of the stoppage of the Cleveland mines, the district from which the largest supplies of lower-grade ores are obtained. This deficiency has had to be made good by imported ores, which during 1892 rose to 3,778,653 tons from 3,180,543 tons in the previous year. The following statement shows the ironstone raised in 1892 in the principal districts. These figures do not include the ores raised under the metalliferous mines act from open workings, but only under the coal mines act. Under the two former the quantity is usually about from 5,000,000 to 6,000,000 tons annually:

|                       | 1892.<br>Tons. | 1891.<br>Tons. |
|-----------------------|----------------|----------------|
| Cleveland.....        | 3,411,400      | 5,128,303      |
| N. Staffordshire..... | 990,895        | 1,023,885      |
| Minor districts.....  | 872,435        | 748,336        |
| Total.....            | 5,644,486      | 7,229,150      |

The government returns also show that fire-clay, oil shale, ganister, limestone, pyrites, etc., were raised in the following proportions:

|                            | 1892.<br>Tons. | 1891.<br>Tons. |
|----------------------------|----------------|----------------|
| Fire clay.....             | 2,212,233      | 2,394,065      |
| Oil shale.....             | 2,085,662      | 2,352,471      |
| Ganister, limestone, etc., | 225,556        | 238,750        |
| Total.....                 | 4,523,451      | 4,985,316      |

The grand total of all minerals in 1892 shows a diminution, as compared with 1891, of 5,738,684 tons.

## Bauxite in the South.

The extensive bauxite beds known to exist in Georgia, Alabama and Arkansas bid fair to become the basis for important industries in the South, and in this way take a position of great economic importance.

Bauxite, or aluminum ore, seems to have been discovered first in Pike county, Ga., in 1887, although the exact locality is unknown. In 1889 a chemist at Fort Wayne, Ind., analyzed a piece of rock sent from the Dykes limonite banks, Cherokee county, Ala., and found it to be bauxite containing 30 per cent. of aluminum. Later it was found in Calhoun county, near Jacksonville, on the property of the Jacksonville Land, Mining & Manufacturing Co. The deposit was red on the surface, and had been mistaken for a soft iron ore until a gentleman familiar with the character of these deposits in France examined and pronounced it an excellent quality of bauxite. Similar deposits were afterward found in Cleburne county, near Rock Run station. Naturally the Georgia counties of Floyd, Polk and Bartow, which are adjacent to the section mentioned, were examined, and, according to the government survey and Smithsonian Institute reports, all are rich in the deposit. In fact, the experts who have made the examination state that the beds underlie the greater part of the six counties and are inexhaustible. The bauxite thus far extracted has been taken out by surface digging or where pockets have been found in limonite banks, but in these instances measurements taken show the existence of one bed fully seventy-five feet deep; others of sixty, thirty and twenty feet, and another which has been traced for a distance of 750 feet with an average vein-depth of twenty-five feet. These are all in Cherokee and Calhoun counties. The surface examination in Georgia shows beds cropping out at many points in the counties mentioned, with apparently as much depth as those which have been thus far opened across the border.

Geologically described, the Cherokee and Calhoun deposits near Jacksonville, Ala., are like those of Georgia near the bottom of the Knox dolomite rocks of Safford. The bottom rocks are now believed to belong to the Upper Cambrian. The Cleburne beds are in the upper part of the Weisner quartzites, Middle Cambrian, believed to be the same as the Chilhowee sandstones of Safford. The Cherokee deposits seem to follow two lines of outcrops, which are parallel and run in a northeast and southwest direction. The lines follow the crests of two anticlinal folds with a synclinal between them. The whole country at this point is covered with a debris of Weisner quartzites, underneath which the limonite and clays are found. The bauxite thus far has been located wherever the limonite and clays lie. It is usually mixed with the clays and is above the limonite. This formation applies to all the counties where the beds have been discovered.

The Alabama and Georgia bauxites, especially the red varieties, are hard on the

outcrops, but after being cut into become soft and crumbly. They are principally pisolitic or concretionary. In a few samples they are earthy. White, gray and red are the principal colors. The average analyses of a carload of samples sent from Cherokee county were as follow:

|                       | Per cent. |
|-----------------------|-----------|
| Alumina.....          | 56 to 60  |
| Ferric oxide.....     | 2.75      |
| Water.....            | 25 to 30  |
| Insoluble matter..... | 7         |
| Titanic acid.....     | 2 to 3    |

A partial analysis of five samples of bauxite from the same section showed 54.68, 55.73, 61.65, 60.15 and 58.25 per cent. of alumina, respectively, slightly less than the ore found in the vicinity of Baux, France, from which bauxite takes its name.

The centre of the Georgia-Alabama bauxite beds, which are all located on spurs of the Appalachian mountains, is the village of Randall, Calhoun county, a hamlet of forty inhabitants located on the East & West Railroad of Alabama. Veins have been traced from this point thirty miles in different directions. But three miles distant is Piedmont, a town of 1500 people, located on the East Tennessee, Virginia & Georgia Railroad and the East & West Railroad of Alabama. It seems destined to be the base of all extensive operations in the bauxite region. The Southern Bauxite Mining & Manufacturing Co., of Piedmont, began digging the ore in November, 1891, and have thus far extracted about 4000 tons, but have suspended work for the present. But one other concern, the Republic Mining & Manufacturing Co., of Hermitage, Ga., is doing any work in the section. So far it has taken out about 1300 tons. Some has been sent to Rome, Ga., where an aluminum furnace was recently erected, but most of it has gone to Kensington, near Pittsburg, Pa., Philadelphia and Natrona, Pa., and Lockport, N. Y. At the latter point an extensive plant for converting the ore into aluminum is in active operation. Electricity is the agent employed.

The bauxite of Arkansas has been given much attention by the State geologist, John C. Branner. It is found in Saline and Pulaski counties, covering an area estimated at 640 acres, although Mr. Branner believes, from the formation in which the bauxite was discovered, that many other beds exist in the vicinity. So far it has been located in two regions, the Little Rock and Mabelvale. In the first named some of the veins are calculated to be twenty feet in thickness; they are all within a radius of two miles. In the Mabelvale region five beds have been found within a short distance of each other; thickness of veins not estimated. In Saline county the deposits are red, black and cream-colored, and in many samples tested are found to be of a very ferruginous variety. Samples of the black and red varieties analyzed show the following:

| BLACK.            |  | Per cent. |
|-------------------|--|-----------|
| Silica.....       |  | 5.11      |
| Alumina.....      |  | 55.89     |
| Ferric oxide..... |  | 19.45     |
| Water.....        |  | 17.39     |
| RED.              |  | Per cent. |
| Silica.....       |  | 4.89      |
| Alumina.....      |  | 46.44     |
| Ferric oxide..... |  | 22.15     |
| Water.....        |  | 26.68     |

Thus far no developments of note have been made in the Arkansas deposits, largely owing to the poor transportation facilities offered in the portion of the State where they are found.

The important feature in determining

the value of bauxite is the amount of iron it contains. The more iron there is present the less valuable the material becomes. For bauxite from which aluminum is reduced the absence of iron is of the utmost importance, as when present it is reduced with the aluminum, thus detracting from the purity and value of the latter metal.

#### New Bids for the Great Kanawha Locks.

The contracts for the building of the last two locks and dams of the Great Kanawha river improvement were not let under a former bidding on account of irregularities in the bids received. New bids were asked for, and these were opened last Thursday. The bids are as follows: Lock and dam No. 10, Joseph Gianini, Allegheny City, Pa., \$238,555; Zimmerman, Truax & Sheridan, Duluth, Minn., \$232,441; Thomas Munford, Lock No. 7, W. Va., \$241,025; Harold & McDonald, Pittsburgh, Pa., \$245,862.50. For lock and dam No. 11 the bids were: Pettit & Hogue, Frankfort, Ky., \$559,325; Thomas Munford, Lock No. 7, W. Va., \$526,895; Harold & McDonald, Pittsburgh, Pa., \$559,500; Thomas, Norris & Sheridan, Duluth, Minn., \$553,810; Shipman & Stewart, Cincinnati, Ohio, \$579,460. Zimmerman, Truax & Sheridan were the lowest bidders for No. 10, and Mr. Munford for No. 11. If the bonds which they offer for the faithful performance of the work are satisfactory the contracts will be given to them. It is the hope of the coal men of the Kanawha valley that the work will be finished within two years. These will complete the Great Kanawha river improvement and give slack water to the mouth of the stream. It is a matter of great importance to the coal trade, as the river is very often closed, when with the dams it would let them into the lower river markets.

#### Kentucky at the World's Fair.

Kentucky's location in the great mining hall at the World's Fair is about half-way up the north centre aisle and directly opposite the space allotted to England. The front of the exhibit is an artistically designed arch built of canal coal, the whole bordered with limestone, while the rear is a reproduction of the mouth of Mammoth Cave. Just inside the archway and lying on a low table is the State map in bas-relief. Excepting the centre aisle, the rest of the space is built high up on either hand in terraces, upon which rest the exhibits of Kentucky's mines and quarries. The tourist enters the cave by descending a pair of steps, where a guide is in waiting to lead the exploring through the caverns. This delusion is accomplished by having a winding tunnel over 100 feet long in the sand beneath the building, with the walls covered with photographs taken by flash light in Mammoth Cave. The exhibit is in charge of W. H. Crump, director of the department of mines and forestry of Kentucky at the World's Fair.

#### Grain Shipments from Kansas City to New Orleans by Water.

The Standard Grain Co., of Kansas City, Mo., is now perfecting arrangements to ship to New Orleans large quantities of grain for export by an all water route via the Missouri and Mississippi rivers. Mr. E. R. Field, a representative of the company, was in New Orleans last week, and stated that the experience of his company so far has been highly satisfactory. The Standard Grain Co. has now about 500,000 bushels on the way to New Orleans by river, all of which will go direct without breaking bulk. Kansas City merchants propose to inaugurate a barge line to New Orleans, which will for the present operate for about three months during the year, and after the improvements on the Missouri river are completed a longer season

may be counted upon. It will, however, be practicable to ship by boat to St. Louis and reship by barges during a greater portion of the year.

#### The Saddle and Harness Industry of Dallas, Texas.

DALLAS, TEXAS, April 27.

Editor Manufacturers' Record:

The oldest, most successful and about the only productive industry that has reached maturity in the Southwest is the saddle and harness business. The conditions that fostered and contributed to the growth of this branch of manufacture were wanting in all other branches. In the primitive time the sole demand for saddles, bridles and harness in the Southwest came from cowboys, bandits and stage-coach lines. At that time stock-raising was the only industry and the stage coach the only means of travel.

The ordinary saddle and bridle and harness of commerce and in use by the rest of mankind were nothing like rich enough for the blood of the festive cowboy, bandit or stage driver of the great Southwest. They were so constantly in the saddle and so intimately associated with the horse as to suggest the fabulous creature called the centaur. They had in some way imbibed the wild and romantic notions of the Spanish conquerors of all this region in regard to extravagant personal and equestrian decoration and ornamentation. When those Spanish adventurers fitted out an expedition to go in quest of gold, silver, the philosopher's stone, the fountain of youth and the like, that expedition presented very much the appearance of a comic opera company in stage costume.

This penchant of the early Spanish adventurer for loud clothes for himself and gorgeous caparison for his horse descended, along with the horse, to the cowboy of 300 years later. The horses which the Spaniards brought to the country went wild and in process of time evolved into the mustang and the Indian pony. The Spaniards obtained these horses from the Moors, and the latter had brought them direct from Arabia, the original home, the cradle, as it were, of the equine species. The Texas horse, therefore, has no occasion to be ashamed of his lineage. With this love of ornamentation, which, along with the horse, they derived from the Spanish cavalier, the cowboy combined a practical Anglo-Saxon desire for durability in his personal and equestrian equipage. The fine, heavy and costly goods made in California and in Chicago answered, at an enormous expense, for his own clothing, but there was no saddle and harness establishment in the entire country that manufactured a style of goods at all suited to the purpose of decorating his horse. To such a ridiculous extent was this carried that the value of the horse was insignificant compared to that of the saddle and bridle, and a whole drove of horses were often given in exchange for an elaborately-designed saddle.

Local attempts were made in several parts of the State to please the fancy of the cowboys in regard to saddles, and it was out of these attempts that the celebrated Texas saddle originated, which is now sold all over the Southwest and West, and whose manufacture has grown to be a big industry of itself in Dallas.

The first saddle-trees made in Texas were the handiwork of an old gentleman of the name of Hope, at Anderson, Grimes county, and the first saddle manufactured in the State was made on one of Hope's trees by J. D. Bond, of Houston, about 1850. And, by the way, Mr. Bond was the grandfather of the Messrs. Padgett Bros., who now have one of the most extensive saddle and harness establishments in the South. After this the Miller tree, manufactured at Huntsville, the Lane tree, made at Lockhart, and the Goliad tree,

turned out at Goliad, were in high favor and great demand. At a later date the bulk of Texas saddle-trees were made at New Braunfels. The varieties of timber employed in this industry are ash, oak and elm, but chiefly the latter.

It was also out of this attempt to supply the highly ornamental and durable saddles, bridles and harness demanded by the early trade of Texas that the present extensive wholesale manufacturing establishments took their start. For a long time they were practically without competition, and when the railroads and farmers came, and an agricultural industry began to grow up, the saddle and harness houses prepared to supply the farmer. By being here on the ground and by taking advantage of the situation they have been able not only to hold this growing trade against all comers from outside, but at the same time to extend their territory to Mississippi, Louisiana, Arkansas, Indian Territory, Oklahoma, and westward to the slope and north-westward to the State of Washington.

But the greatest strides in the development of this industry have been taken within the last six or eight years, and since the beginning of the boom, during which new towns started and cities grew. In these centres of wealth, of course, there sprang up a demand for all manner of fine and fancy workmanship in vehicles and harness, and here again the home establishments had the requisite enterprise and ingenuity to fill the new field as it opened. In order to manufacture these high-grade goods it was necessary to secure the latest improved machinery and the most skilled artisans to be had in the Eastern cities, so that there is no finer nor better work turned out anywhere than in Dallas, and there is perhaps no city in the world that turns out a greater variety of styles of work, as Dallas manufactures everything that any other city does, besides many special styles of work.

Of the houses of the State that are engaged exclusively in the manufacturing and jobbing business there are Padgett Bros., Zemoir Bros. and G. H. Schoellkopf, of Dallas; Tom Padgett, of Waco; J. H. Wamouth, of Austin; Charles Langholtz and Frank & Co., of San Antonio. Of the houses that do considerable jobbing business, but at the same time have a local retail trade, there are R. E. Gibbons, of Gainesville; Trigg & Hicks, of Paris; Ellis & Kellner, of Fort Worth; the Tyler Saddle Co. and the Lone Star Leather Co., of Tyler. But fully four-fifths of the business is done by the Dallas houses, which give employment to between 400 and 500 men, and which did a business last year (1892) of over \$1,250,000. This exceeds the business done in this line by any other city in the South, not excepting Louisville and New Orleans. The Dallas houses last year paid dividends all the way from 18 to 24 per cent. on the capital invested.

The leather used here comes from Milwaukee, Louisville, Cincinnati and Pittsburgh, though California sells a good deal of leather in the Southwest. While the operation of the interstate commerce law has very seriously crippled the jobbing houses generally in north Texas, that law has not injured the saddle and harness houses to any very great extent. This is because the latter are engaged in manufacturing and have to pay freight on the raw material only, and the freight on the raw material that enters into \$1000 worth of saddlery would not amount to any more than the freight on \$100 worth of groceries. The freight rate on saddlery hardware, however, is enormous. Another reason why this is the only line of productive industry that has reached maturity here is that no other line has had equally favoring conditions. In addition to what has been said above, with the exception of having to pay slightly more onerous freight rates, there is no other point in the country where saddles

and harness can be manufactured at less cost. All the houses have to buy their leather, as they could not tan extensively enough on their own hook to supply all the varieties they need. The tanneries of the country are about centrally located, and all the manufacturers have to pay freight on the raw material. The result is that Dallas is able to undersell all competitors in much of her territory and to meet competing prices in several States and Territories. The carrying out of an enterprise now on foot will give Dallas a still greater advantage in this territory. That enterprise is the establishment of immense tanneries in connection with the packing concerns of Dallas and Fort Worth.

The navigation of the Trinity river, an enterprise now well advanced and shortly to be an accomplished fact, will secure to Dallas a water rate on all inbound freight. This will unquestionably build up all lines of wholesale and manufacturing business here, and very greatly help the saddlery and harness interests, more particularly in the matter of saddlery hardware. The prevailing rate on this is ninety-two cents per 100 pounds to Dallas, but it is hauled through Dallas and delivered at Houston and Galveston for forty-two cents per 100 pounds. This is because the two last-named cities enjoy water rates. The Trinity river empties into Galveston bay at a distance of 600 miles from Dallas. For fully 450 miles of this distance the river is navigable the year round, but the remaining 150 miles can at present be navigated during only a part of the year. This is to be remedied by a series of locks and dams which the Trinity Navigation Co. have made arrangements to put in. Three snag-boats with double crews are working day and night clearing the stream of snags, overhanging timbers and other obstructions.

The saddle and harness houses all report an unusually large business for the first three months of 1893. Some of them say they have done twice as much business during the period mentioned as they ever did for the corresponding three months of any former year. They also report collections good. The outlook for abundant crops of all kinds is the finest in the history of the State. The small grain, of which the acreage is unprecedentedly large, is looking well all over the State and promising a good yield. The corn and cotton crops are also in fine condition. The farmers have more ready money than they ever had before. They therefore pay cash at the store, and this in turn enables the country merchant to settle oftener.

Mr. A. T. Tenison, of Tenison Bros., is just back from a trip south as far as San Antonio. He reports the outlook for crops and business good all over that section.

Tenison Bros.' collar factory, on Patterson avenue, has outgrown itself, and they are fitting up the 50x140 two-story building adjoining as an addition. These gentlemen a few years ago occupied a small building on Elm street, but they have taken such strides in recent years that they now occupy two large buildings and give employment to 110 workmen.

W. S. A.

THE Wilkesboro Land & Development Co., of Wilkesboro, N. C., expects to develop extensive beds of fine clay on its property, and will likely engage in manufacturing brick and ultimately make tile, sewer pipe and other shapes. An analysis of the clay shows silica 54.80, alumina 30.92, magnesia 1.01, oxide of iron 0.78, alkalies 0.67, organic matter 3.77 and water 7.14.

It is reported that some very fine specimens of garnet and mica have been found in Jackson county, N. C. The mica is said to be in large plates, having very little color and free from cross flaws or spots. Dr. W. F. Tompkins and R. Hoffman, of Webster, are now investigating the matter.



## Losses in Transmission of Heat.

[Abstract of an article by Prof. R. C. Carpenter, Cornell University.]

The convenience of having all the boiler of a steam plant at one point has led to the adoption of methods of conveying steam long distances with the least loss of power practicable. This loss is important to determine in order that the economy of the operation may be seen.

The surplus coal of the Lehigh Valley system destined for the New York market is unloaded by the Dodge system of coal-handling machinery, stored in enormous conical piles at South Plainfield, N. J., and then reloaded as the state of the market demands. The coal is distributed on either side of the track for a distance of

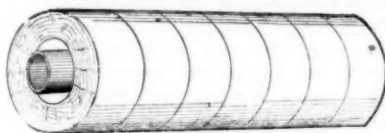


FIG. 1.

1500 feet. The unloading and reloading machinery is heavy and requires in each case an enormous power which is only in occasional use. The system adopted is that of independent engines provided with steam from a central boiler plant.

The steam is conveyed to the engines in piping, which is protected from the heat radiation by the Wyckoff covering, as now manufactured at Elmira, N. Y., by A. Wyckoff & Son. It consists of two concentric octagonal pipes, each built of one-inch plank, and separated from each other by a very thick layer of water-proof paper. The form of this covering is shown in Figs. 3 to 6. Fig. 3 represents a section of the casing complete. Fig. 4 shows pipe with a portion of the outer covering removed, showing paper. Fig. 5 shows coating removed from two staves, showing galvanized wire with which casing is wound. Fig. 6 shows the manner of casing tees and elbows. The top is put on with screws, and can be easily and quickly removed when necessary. The steam pipe is laid in the centre of the wooden pipe, and is surrounded by an air space about half an inch across.

The boilers for the plant are six in number, and are a vertical type of plain tubular boiler, built by the Stearns Manufacturing Co., Erie, Pa. They are six feet

in diameter, eighteen feet high, and contain 316 flues, each three inches in diameter. Four of the boilers are sufficient to operate the plant at its usual capacity. The test was made only of the west line, and was confined to measurements of the loss of heat between the boiler-house and D engine. The test was made February 17, 1893, and was of eight hours duration. Total length from boiler-house to D en-

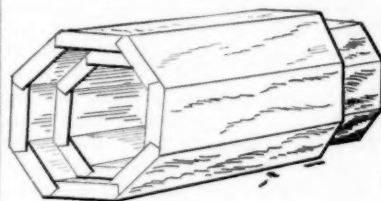


FIG. 3.

gine 747 feet, consisting of 250 feet of six-inch, 106 feet of five-inch and 391 feet of four-inch pipe, having a total radiating surface of 1057.5 square feet. The line leading from the boilers is of six-inch pipe to E engine-house, then five-inch pipe to the branch leading to A engine-house, and the remainder of the distance is four-inch pipe.

The general method of testing adopted

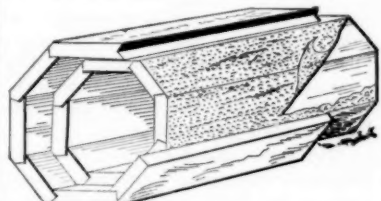


FIG. 4.

was such as to give information—first, as to the amount of water in the steam as it entered the steam pipe; second, the amount of water in the steam as it reached the engine; third, the amount of water collected at intervening drips; fourth, the total amount of steam used; fifth, the fall in pressure between the boilers and the engine. These determinations were made as follows: The amount of water in the steam was determined by a throttling calorimeter,

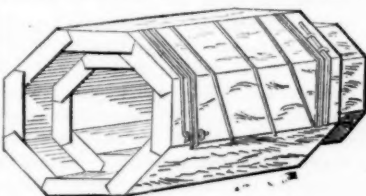


FIG. 5.

the sample of steam being drawn in each case from a vertical pipe located close to a bend from a horizontal and collected by a half-inch nipple extending past the centre of the vertical pipe. The drip was caught at places which had been provided in the pipe and was weighed from time to time.

The total loss per hour was equivalent to that required to evaporate  $36+45.1=81.1$  pounds of water from a temperature of  $212^{\circ}$  F. to a pressure of 70.1 pounds by gage.

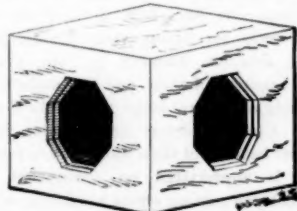


FIG. 6.

This is equal to  $81.1 \times 893 = 72,322$  British Thermal Units. The average steam pressure was 70.01 pounds by gage, its temperature  $313.6^{\circ}$  F., the average outside temperature  $16.6^{\circ}$  F., hence the difference of temperature was  $297^{\circ}$ . The loss for each degree difference of temperature becomes  $72,322 \div 397 = 244.2$  British Thermal Units per hour. The total radiation surface was

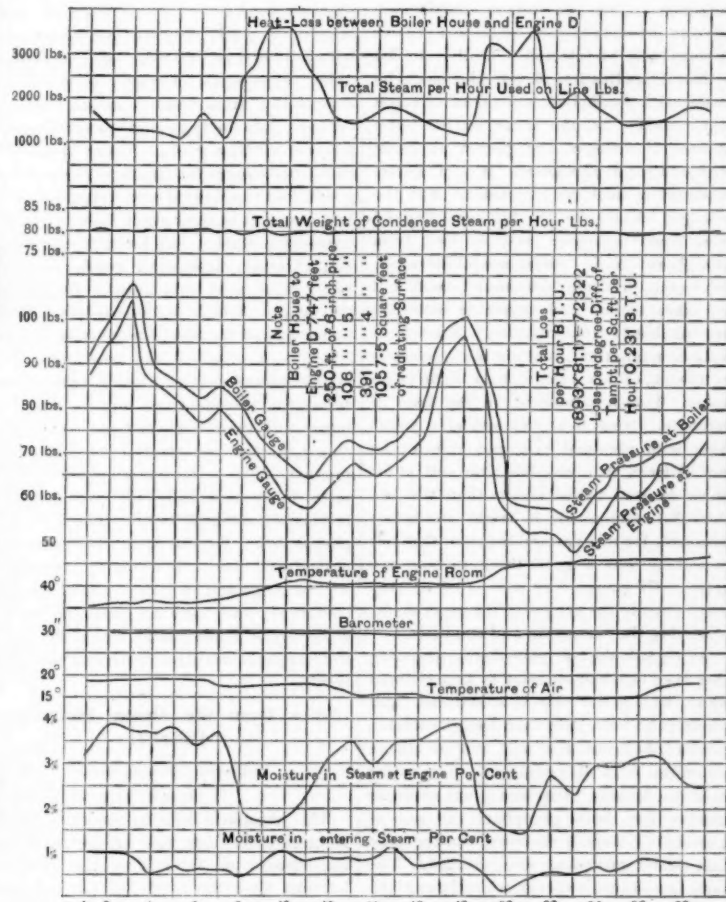
1057.5 square feet, hence the loss in British Thermal Units per square foot per hour was 0.2315 per degree difference of temperature.

The loss for a naked steam pipe under the same conditions would have been 2.93 British Thermal Units per square foot of surface per hour, or the loss of the covered pipe is reduced to 7.87 per cent. of the bare steam pipe. The entire loss of the transmission is equal to the coal needed each hour to evaporate eighty-one pounds of water, which can be approximately stated as ten pounds, since the evaporation of eight pounds of water by one pound of coal is not unreasonable assumption. Expressed as percentage of maximum capacity of the line, this loss will not exceed 1 per cent., although it reached 2.3 per cent. of the maximum heat transmitted during the test.

|   | A.    | B.    |
|---|-------|-------|
| Loss in British Thermal Units per square foot of surface and per degree of temperature..... | 0.614 | 0.231 |
| Per cent. that loss bears to that of a naked steam pipe under the same conditions.....      | 30.7  | 7.9   |
| Relative value of covering.....   | 1.0   | 2.66  |

It is easily possible to calculate the surface required to condense one pound of steam from the data given in the tests. Thus, to change one pound of steam at atmospheric pressure into water at temperature of  $212^{\circ}$ , 967 British Thermal Units must be absorbed.

The loss in transmitting power by any system is largely constant, and hence when the power is greatly increased the percentage is correspondingly reduced. The following estimate is based on the transmission of 100 horse-power 1000 feet:



## SUMMARY OF TESTS OF LOSS OF HEAT, LEHIGH COAL STORAGE PLANT, SOUTH PLAINFIELD, N. J.

| No. | Boiler.                      | Gauge Press. | TEMPERATURE. |     | MOISTURE IN STEAM. |     | Total weight of steam in line. | Remarks. |
|-----|------------------------------|--------------|--------------|-----|--------------------|-----|--------------------------------|----------|
|     |                              |              | (a)          | (b) | (a)                | (b) |                                |          |
| 1   | Boiler D.                    |              |              |     |                    |     |                                |          |
| 2   | Boiler house.                |              |              |     |                    |     |                                |          |
| 3   | Outside air.                 |              |              |     |                    |     |                                |          |
| 4   | Calorimeter entering steam.  |              |              |     |                    |     |                                |          |
| 5   | Calorimeter steam at engine. |              |              |     |                    |     |                                |          |
| 6   | Entering steam.              |              |              |     |                    |     |                                |          |
| 7   | At engine.                   |              |              |     |                    |     |                                |          |
| 8   | Increase.                    |              |              |     |                    |     |                                |          |
| 9   |                              |              |              |     |                    |     |                                |          |
| 10  |                              |              |              |     |                    |     |                                |          |
| 11  |                              |              |              |     |                    |     |                                |          |
| 12  |                              |              |              |     |                    |     |                                |          |
| 13  |                              |              |              |     |                    |     |                                |          |
| 14  |                              |              |              |     |                    |     |                                |          |
| 15  |                              |              |              |     |                    |     |                                |          |
| 16  |                              |              |              |     |                    |     |                                |          |
| 17  |                              |              |              |     |                    |     |                                |          |
| 18  |                              |              |              |     |                    |     |                                |          |
| 19  |                              |              |              |     |                    |     |                                |          |
| 20  |                              |              |              |     |                    |     |                                |          |
| 21  |                              |              |              |     |                    |     |                                |          |
| 22  |                              |              |              |     |                    |     |                                |          |
| 23  |                              |              |              |     |                    |     |                                |          |
| 24  |                              |              |              |     |                    |     |                                |          |
| 25  |                              |              |              |     |                    |     |                                |          |
| 26  |                              |              |              |     |                    |     |                                |          |
| 27  |                              |              |              |     |                    |     |                                |          |
| 28  |                              |              |              |     |                    |     |                                |          |
| 29  |                              |              |              |     |                    |     |                                |          |
| 30  |                              |              |              |     |                    |     |                                |          |

Average amount of water caught in drips, 45.1 pounds per hour.  
Average amount of water indicated by calorimeter, 36 pounds per hour.

The diagram shows the variation in the various quantities which occur at each observation during the test. It will be noted that the total loss expressed in pounds of steam condensed remained practically constant. This has the effect of decreasing the percentage of moisture present in the steam when the total amount of steam passing through the line increased. It is also of interest to note the parallelism of the two lines which represent respectively the pressure at the boiler and at the engine, nearly 250 feet distant.

These figures compare favorably with any other method of power transmission, even when the fact is considered that the line during the winter months is kept hot night and day, while the power is actually used during the day. This would not at the most more than double the latter number, and even if condensed would not make the loss of power transmission exceed 5 per cent. of that required to do the work.

A comparison of the two methods of protecting steam pipe shows the following. Column A is for pipe under ground and protected by solid wood piping with shell four inches thick. Column B is for pipe in square wooden box and protected by the Wyckoff covering two inches thick:

## METHODS OF TRANSMISSION.

| Line shafting—   | Percentage of loss. |
|--|---------------------|
| Loss by friction (average 25).....                                     | 15 to 40            |
| Electricity—   |                     |
| Loss in transforming from mechanical to electrical and vice versa..... | 20 to 30            |
| Line loss.....   | 2 to 5              |
| Total loss.....  | 22 to 35            |
| Conveying steam—   |                     |
| Naked steam pipe (still air).....                                      | 37.6                |
| Pipe covered with solid wood and earth.....                            | 11.2                |
| Pipe covered with Wyckoff's covering.....                              | 4.2                 |

Since the table gives the loss caused by each square foot of surface for a difference in temperature of one degree between the steam in the pipe and the medium outside, we have only to divide 967 by the product of the number representing the difference of temperature and that showing the loss. Calculation made in this manner gives the following values for the amount of surface, expressed in square feet, required to condense one pound of steam:

| Condition of pipe.                            | Difference of temperature between steam and air. |               |               |
|---|--|---------------|---------------|
|   | $1^{\circ}$                                      | $180^{\circ}$ | $200^{\circ}$ |
| Naked pipe.....                               | 483  | 2.7           | 2.4           |
| Pipe protected solid pipe (case A).....       | 1570   | 8.7           | 7.8           |
| Pipe protected Wyckoff covering (case B)..... | 4170   | 22.1          | 20.8          |

## PHOSPHATES.

### The State Chemist's Report on Florida Phosphates.

#### II.

A few practical suggestions to orange-growers and others who may desire to test soft phosphates may not be out of place. It is well to remember—first, that soft phosphate is not a complete fertilizer, and that it contains only one of the three prominent elements needed in plant life; second, that the solubility of soft phosphate is probably influenced largely by soil and other conditions, which it is impossible to determine beforehand; and third, that a great many soils in the State already contain all the phosphoric acid that is needed or will be needed for years to come. In making the experiment in a grove, for instance, something like the following plan should be pursued: Let two rows of similar size, age and previous history, so far as fertilizer is concerned, be selected. To the one let a liberal application of soft phosphate be made, with a sufficient amount of nitrogen and potash. To the other let the same amount of nitrogen and potash be given without the soft phosphate. It is, of course, essential in such an experiment that the nitrogen should be in this case derived from some substance entirely free from phosphoric acid. Substances like bone, fish scrap, tankage, cottonseed meal and all other animal and vegetable materials are obviously inadmissible. Nitrate of soda or sulphur of ammonia must be used or the experiment would have little or no value. Potash should be in the form of sulphate. Now, if at the end of a year's time, with identical care and culture, the row of trees that was fed with soft phosphate showed better results than the one that did without it, it might be safely assumed, for this particular grove, that soft phosphate was a good thing to buy and apply. Of course, any other tree or crop may be made the subject of the experiment, observing the same plan and conditions.

As regards the soft phosphates, assuming that even one-half of what is now claimed by its friends for this new material shall prove to be true, they have a most valuable product, and one that will find an almost unlimited field of usefulness. The writer believes, however, that the great ultimate market for these phosphates is not in Florida. Naturally the home market is the first to be cultivated and reached. The same conditions, however, which have given to Florida the most extensive known deposits of phosphate have more or less obtained all over the State. The soil itself has to no inconsiderable extent been a beneficiary in the liberal and widespread distribution of this essential element of plant food. In our Florida soils potash is almost universally needed, nitrogen generally and phosphoric acid sometimes. But outside of Florida there is a world that is waiting for cheap phosphate. Millions of acres of otherwise fertile soil in the Eastern, Northern and Western States are now either abandoned or on the point of being abandoned simply because the meagre original supply of phosphoric acid has been carried away to Eastern cities or to Europe in the form of hay and wheat and corn and oats and products. Even California orange-growers find that the first and most pressing need of their soil is phosphates. A good part of Europe is practically in the same phosphate-poverty-stricken condition. This state of things is certain to increase in a rapid ratio as time goes on and population multiplies. Now, if without the expense of grinding and acid treatment, our Florida miners of "soft phosphate" can furnish the world at a cost of half what it has previously been paying this "missing link" in the chain of profitable crop and food productions, it will at once be seen what a boom to the world these soft phos-

phates may become, and what an illimitable field there is for their future profitable distribution. Of course there are questions of transportation and others to be equitably adjusted which may take years to accomplish. But the interests involved are too vast to permit any obstacles, however great, to perniciously oppose the utilization of what nature herself seems to have specially prepared for the rejuvenescence of declining agriculture in so many of the older portions of the world.

In all that has been said above the writer must not be understood as entertaining the belief that these soft phosphates are at once or at any time in the future to take the place of acidulated phosphates in the fertilizer trade. The former have their place to win; the latter have an already assured place in the commerce and agriculture of the world. As has before been intimated, save in the important matter of physical condition, judging from his own laboratory work, he sees no reason to believe that these Florida soft phosphates differ in essential character or chemical composition from South Carolina "floats" or any other finely ground phosphate material of medium grade. There have been earnest advocates for the use of these latter goods, and to a limited extent these "floats" find a market in their crude state. But for immediate results, and for quick growing annual crops, acidulated goods are not likely to be soon supplanted. Indeed, as the supply of high grade superphosphates increases and the cost of production diminishes, both of which the hard rock and pebble phosphates of Florida render possible, it is reasonable to suppose that the future will show a marked and steady increase in the consumption of this latter product. The writer has simply desired to state fairly and fully all that could be reasonably claimed by the friends of soft phosphates. In this case, however, the agricultural world, and not the chemists, will be judge and jury and court of appeals combined, and nothing that the writer could say or leave unsaid would be likely to in anywise modify or influence the final result.

#### Notes from the Ocala Phosphate District.

[Editorial Correspondence.]

OCALA, FLA., April 29.

The phosphate industry presents several features at this time that are of particular importance and interest because of their bearing upon the future of the industry. Influences particularly prominent at the present time promise to increase the stability of the business and put it upon a better basis than it has yet occupied. The most important factor is the change that is being brought about in the methods of dealing with foreign purchasers.

Until recently all sales of phosphate to foreign purchasers have been made subject to acceptance upon delivery at points of destination. This method of doing business has been very unsatisfactory to the sellers, as in several cases shipments have been rejected upon arrival at foreign ports, thus entailing heavy loss to the shippers. Under this plan shippers are entirely at the mercy of the buyers, and complications have been so frequent that a change in the methods of doing foreign business has become a matter of necessity for the protection of the producers here in Florida. Sellers are now insisting that phosphate shall be accepted by the purchasers before shipment, so that there shall be no opportunity for question upon receipt of goods by purchasers. This departure will develop a considerable brokerage business here, and also establish more direct representation of foreign buyers in this market, both of which will very materially help the industry of this section.

The phosphate market is very firm at present, although there is only a limited

volume of business. The stock of phosphate at the mines in this region is smaller than at any time since the early days of the industry, and purchasers are experiencing some difficulty in getting deliveries on their contracts with miners. The present output is only moderate, as most of the mines are undergoing improvements that will very largely increase their capacity and improve the character of their product. Purchases on foreign accounts have been heavy during the past three months, and have resulted in the present firmness of the market. Sellers are holding off in anticipation of further advances, and very little rock is being offered. Current quotations are as follows f. o. b. Fernandina or Tampa: Hard rock, 75 to 80 per cent., \$8.00 to \$8.50; land pebble, 70 per cent., \$5.00 to \$5.50.

Capt. G. M. Wells, who has been a prominent figure in the phosphate industry here for several years, has inaugurated a new venture that is just in line with the ideas outlined above, and which promises to be an important factor in the business. He has organized the Wells Phosphate Co., not for the purpose of mining, but to handle phosphates for the producers in this region and to buy for a number of large consumers in the North and abroad. Captain Wells has established some very valuable connections, and already has placed the output of several mines. In these transactions he stands between the miner and the consumer, and enables more satisfactory dealings for both parties.

The entire phosphate industry of this region is undergoing a transformation at present, the first crude methods of mining with pick and shovel and wheelbarrow being abandoned for expensive plants of labor-saving machinery. As a natural consequence machinery men are doing an immense business in this country. Mr. W. M. Cummer, of the F. D. Cummer & Son Co., of Cleveland, Ohio, has been here since last August looking after a large amount of work which his company has in hand. He has just finished a second dry-process plant for the Ocala & Blue River Phosphate Co., at Luraville. The machinery has been tested and is now all ready for operation. The plant is a duplicate of that erected for the Stonewall Phosphate Co., at Juliette Station, and has capacity for drying 250 to 300 tons of material per day. The Cummer Company now has nine driers in the phosphate regions of Florida, as follows: Stranathan Phosphate Co., Anthony; Ocala & Blue River Phosphate Co., Elliston; Tampa Phosphate Co., Tampa; Ocala & Blue River Phosphate Co., Luraville (two); Stonewall Phosphate Co., Juliette Station; Terraceia Phosphate Co., Pebbledale; A. D. Wright, High Springs; Marion Phosphate Co., Chatmar. Mr. Cummer informs me that his company has recently closed a contract with the Charleston Mining & Manufacturing Co., of Charleston, S. C., for six of their largest-size driers for drying phosphate rock. There seems to be a large demand for Cummer driers at present, as twenty-six have been sold in the last five weeks for drying cement, clay, glass sand, asbestos, alumina, gypsum, plaster and sulphate of soda, and the makers are figuring on several other jobs in the South. The Cummer driers are popular hereabouts because of their durability, a feature that is appreciated on account of the difficulty in getting repair work done in this region.

Mr. Hughes, of Hughes & Chisolm, Charleston, S. C., is here looking after considerable work which his firm has in hand. They are putting in log washers and cylinder driers for the Hamburg Phosphate Co., near Inverness, and the Florida Phosphate Co., Hernando.

A new machine shop for all kinds of repairs and new work will soon be opened here by Graham, Gardner & Co. Most of

their tools are now in place, and the shop will soon be ready for business.

Mr. A. H. Agnew reports a good demand for the output of his two soft-phosphate mines, the Standard Phosphate Mining, Chemical & Manufacturing Co. and the Florida Pebble & Soft Phosphate Co. Mr. Agnew is so good as to say that the MANUFACTURERS' RECORD first directed his attention to Florida phosphates and induced his investment in the industry. Mr. Agnew is not alone in his obligation to the MANUFACTURERS' RECORD.

M. Alphonse A. Ritchie, director-general of the Cie des Phosphates de France, is here on a visit of inspection of the extensive interests of his company in this region. Within the past week this company has purchased the property of the W. T. Adams Phosphate Co. at Anthony. The exact price paid has not been made public, but it is generally understood that the Adams Company loses nothing by the transaction.

E. H. S.

#### Phosphate Markets.

OFFICE MANUFACTURERS' RECORD, BALTIMORE, May 4.

There is very little doing in the phosphate market, and prices continue about steady, with no urgent demand at the moment. Manufacturers of fertilizers are not buying, and until the season commences in June there will be very little done. Advices from Europe show no change in the outlook, and values are about steady. The only arrival during the week was the schooner Augustus Welt, from Port Tampa, with 1560 tons of phosphate rock. The charters during the week were the schooners Florence Magee, rock, Battery creek, S. C., to New York, and Fannie Brown, Battery creek, S. C., to Richmond, Va. The market at the close today was steady, as follows: Ashley river rock is quoted \$4.75 and Charleston \$5.00, and for future delivery \$3.75 to \$4.25 for 50 to 55 per cent. product; Florida river pebble, 60 per cent. product, is quoted \$3.75 to \$4.25 f. o. b., and land pebble, 67 to 70 per cent. product, \$5.00 to \$5.50 f. o. b.; Florida hard rock is firm at \$8.00 \$8.50 f. o. b. Fernandina.

#### FERTILIZER INGREDIENTS.

As usual at this period of the season, the market is quiet, with a light volume of trade in progress. There is no decided demand expected until June, and manufacturers, although buying small lots, are not purchasing much until the season commences. Stocks are generally light, with prices nominally firm, as follows: Blood, 2.45 to 2.50 per unit f. o. b. Chicago; tankage, 7 per cent. of ammonia and 20 per cent. bone, \$27.00 to \$30.00 per ton Baltimore; brimstone, best unmixed seconds and thirds, \$18.50 to \$20.00; nitrate of soda, 2½ cents per pound and 2.20 to arrive; ground bone, \$28.50 to \$31.00 per ton of 2000 pounds; dissolved South Carolina phosphate rock, \$11.50 to \$12.50 per ton in bags for car lots; dried fish in job lots, \$30.00 to \$32.00; wet and acidulated, \$18.50 to \$20.00; dissolved bone black and dissolved bone ash, 18 per cent., \$20.00 to \$22.50; kainit, \$11.50 to \$12.00 per ton of 2000 pounds in bags; muriate of potash, \$1.85 per 100 pounds for spot goods of 80 per cent.

CHARLESTON, S. C., May 1.

The phosphate industry is at present being rapidly developed in this State, and the general market at this port, while not showing any marked activity, is steady in tone, with a fairly promising outlook. The volume of business reported during the week has not been large, but the demand from domestic ports is a shade better. Prices continue very steady under advices from Europe, and the tone in the United Kingdom is reported unchanged. At the close of business today crude rock is quoted \$3.75 to \$4.25 f. o. b.; hot-air-dried, \$4.75 to \$5.00 f. o. b., and ground rock \$7.50 to



\$7.75 f. o. b. in bags. The shipments during the week are as follows: Schooner Carrie L. Godfrey, for Wilmington, Del., with 600 tons phosphate rock, and schooner James Boyce, for Weymouth, Mass., with 1000 tons. Freight on phosphate rock is firm, and \$2.40 per ton and loaded has been paid to carry rock to New York.

The comparative exports of crude phosphate rock and ground from the port of Charleston from September 1, 1892, to April 28, 1893, and for the same time in 1891, are as follows:

| Destination.        | 1892-93. |         | 1891-92. |         |
|---------------------|----------|---------|----------|---------|
|                     | Crude.   | Ground. | Crude.   | Ground. |
| Baltimore.....      | 25,660   | .....   | 22,631   | .....   |
| Philadelphia....    | 10,893   | .....   | 11,981   | .....   |
| Boston.....         | .....    | .....   | 850      | .....   |
| Elizabethport....   | .....    | .....   | .....    | .....   |
| Wilmington, N. Del. | 3,779    | .....   | 600      | 747     |
| Barren Is., N. V.   | 6,217    | 1,641   | 1,673    | 1,613   |
| New York.....       | .....    | .....   | .....    | .....   |
| Mantua creek....    | 1,835    | .....   | 2,057    | .....   |
| Weymouth.....       | 10,220   | .....   | 14,332   | .....   |
| Richmond.....       | 4,999    | .....   | 5,204    | .....   |
| Seaford, Del....    | 600      | .....   | 1,200    | .....   |
| Newton ck., N. J.   | 1,078    | .....   | 1,078    | .....   |
| Wilmington, N. C.   | 665      | .....   | 450      | .....   |
| Welsh Point.....    | .....    | .....   | .....    | .....   |
| Orient, L. I.....   | .....    | .....   | 1,890    | .....   |
| Other ports.....    | 4,210    | .....   | 3,290    | 300     |
| Total exports....   | 70,656   | 1,641   | 75,099   | 2,660   |
| By railroads.....   | .....    | .....   | 35,600   | 1,613   |
| Foreign ports....   | 175      | .....   | 442      | .....   |
| Grand totals....    | 70,831   | 1,641   | 111,141  | 4,273   |

#### FERTILIZER INGREDIENTS.

The market here is quiet, as usual during this period of the season, and manufacturers of fertilizers are not making any new ventures in the way of purchases at the moment. Stocks are generally light, and blood, tankage and fish scrap are all scarce and held at outside figures. Brimstone to arrive is held at \$20.00 per ton for best unmixed seconds; nitrate of soda direct per 100 pounds is quoted at \$2.50; kainit is steady at \$12.00 to \$12.50; ash element and ash phosphate are quoted at \$12.00 to \$12.50.

#### The European Phosphate Market.

There has been very little change in the general market for fertilizer ingredients in Europe during the current month. Stocks of nitrogenous material and ammoniates are very light, while the demand in most cases is quite active. Florida phosphates are very steady in tone, and sales of hard rock for long future delivery have been made at 8½d. net. There is no river pebble offering. South Carolina rock is unchanged, and has been offered at 6½d. per unit. Messrs. Couper, Millar & Co.'s circular of the 17th ult. on the fertilizer market of the United Kingdom is as follows: "The position remains very much as stated in our last circular. Nitrogenous materials continue in active request, and supply being very limited, prices are well supported. Phosphates there has been little improvement in, but we hear of raisers closing down, which must tell in time. There has been an immense demand for fertilizers, and little or no stock of superphosphate exists. South Carolina phosphate is offering at 6½d. per unit. Florida hark rock, 75 per cent. guaranteed, is offering at 8½d., and sales made into next year at 8½d. net. River pebble none offering. Land pebble, 70 per cent., finds a better market in the United States. Bone ash is unchanged, say £3 to £3 5s.; bones £4 2s. 6d. Bone meal, however, has been in active request, and large sales reported in Liverpool at from £4 2s. 6d. to £4 15s., as to quality. Sulphate of ammonia is scarce and in active demand at £12 12s. 6d. per ton. Nitrate of soda is strong at £10 12s. 6d. per ton in dock warehouse. In ammoniacal materials stocks of fish guano will not be available till end of May or early June. Ground hoofs and horns are well sold forward, and dried blood is not obtainable. Muriate of potash is unchanged at £7 7s. 6d. per ton on basis of 80 per cent. in bags for 50-ton lots. Kainit 30s. in bulk f. o. b. Hamburg in 50-ton lots only."

#### Phosphate and Fertilizer Notes.

THE steamship Grao, from Cuba, consigned to P. Arentz, of Fernandina, arrived in Cumberland sound last week. She will load with phosphate.

MR. WILLIAM ROSE, superintendent of the Imperial Phosphate Co., of Charleston, S. C., and Dr. Morrow, of the Bonnie May mines, visited Bartow, Fla., last week.

THE Bartow Phosphate Co. have shut down their works at Bartow to put in larger machinery. They will resume operations some time in June next.

THE steamship Polaria, of the Hamburg-American Packet Line, is now at Port Tampa, Fla., where she is loading 2000 tons of phosphate, and will leave port drawing nineteen and a-half feet. From Tampa she will proceed to Norfolk, Va., and take on 1500 tons of coal, leaving port drawing twenty-six and a-half feet of water.

It is said that the Alexandria Chemical & Fertilizing Co. at Alexandria, Va., will shortly commence the erection of extensive additions to its fertilizing mill which will nearly double the size of the present plant. The increase in business has compelled the company to extend its plant.

THE International Phosphate Co., of Orlando, Fla., has been reorganized. The officers for the ensuing year are as follows: Gordon R. Rogers, president; W. Henderson, vice-president; L. D. Browne, secretary; and directors, Messrs. Rogers, Henderson, Hon. C. G. Butt, Alexander Radcliffe and H. F. Martyn. This company expects to resume mining operations at an early date.

THE exports of high-grade phosphate rock from the port of Savannah on the 29th ult. were as follows: Per steamship Prydain, for Stettin, 2350 tons, and per British steamship Kingsdale, for Rotterdam, 2200. Both clearances were made by I. M. Lang & Co.

THE Tampa Phosphate Co. have had three schooners loading at Gadsen's Point this week. The Jerome B. Look cleared with 600 tons of phosphate, the Fortuna with 1000 tons, and the May Bartlett sails this week with 600 tons.

THE shipments of phosphate rock from the port of Fernandina, Fla., for April were only 5009 tons, divided as follows: The steamship Asiatic Prince cleared with 1700 tons, the Efficient with 809 tons and the Heathfield with 2500 tons. The prospects for the current month are much better, as nearly three times that number of vessels are already chartered to load this month.

THE Abilene Oil Manufacturing Co., of Abilene, Texas, held its first meeting on the 11th ult. and elected the following directors for the ensuing year: C. O. Morris, I. H. Eaton, C. W. Warren, O. W. Steffins, J. E. Cockrell and T. S. Rollins. The mill is to be placed in a new stone or brick structure to be erected for the purpose. The machinery will be of the latest and most approved style, and the mill will have a capacity of fifty tons per day. At a subsequent meeting committees were appointed to complete arrangements for the immediate construction of the mill. They will get bids as soon as possible from the various builders of cottonseed mills for the erection of a 50-ton mill with a pressing capacity of thirty tons per day, and for a 50-ton mill with a pressing capacity of fifty tons.

THE Waters-Pierce Oil Co.'s plant at Taylor, Texas, containing about 13,000 gallons of cottonseed oil, and King's coal bins and feed warehouses were destroyed by fire on the 22d ult. The oil company's loss is about \$30,000. The company carries its own insurance.

THE cottonseed-oil mill projectors at Mexia, Texas, have secured deeds from the trustees, and will commence at once to build a 90-ton brick mill.

#### COTTONSEED OIL.

This department is open for the full and free discussion of trade topics and practical questions, and contributions are invited from men who are identified with this industry. Items of news are always acceptable.

#### Cottonseed Oil in Holland.

ROTTERDAM, April 27.

#### Editor Manufacturers' Record:

Cottonseed oil remains quiet and dull at our market and prices are declining. The arrivals of this kind of oil remain important from all sides, and the butterine manufacturers take only small quantities from the market, because they prefer to buy other kinds of oil. Stocks are increasing here and very little business is doing. The quotations from America are much easier, but even these lower prices could not lead to business. Choice butter oil is now to be obtained at forty-one to forty-two cents ex warehouse, but probably forty cents would not be obtainable for large quantities. A good part of the owners of oil don't think that it is now a good opportunity to sell, and withdraw their parcels from the market, expecting that they shall obtain later a much better price. The oil of the new crop don't arrive here before December 1, and the butter manufacturers will want much cotton oil during October and November. In the summer months they buy very little. America is writing that stocks are very small. The last steamers arriving here from America did not bring large quantities, so it is probable that we cannot await much oil from America. In this case it is not probable that the decrease will continue, but if America ships further large parcels to our market it is quite certain that we shall see much lower prices.

G. W. SANCHES.

#### The Cottonseed-Oil Market.

NEW YORK, May 3.

#### Editor Manufacturers' Record:

The better demand and consequently better market which we anticipated in our last week's review has been realized even sooner than we expected, and there has been a large business done this week and a sharp advance established in prices chiefly at the close of the week. This change in the situation was brought about primarily by the demand from the West, and their purchases of oil are due directly to the increased business in compound lard. Sales were made early in the week at forty-eight cents in bulk delivered in Chicago and at fifty-one cents in Chicago, but at the close forty-nine cents in bulk was paid for 3000 barrels and fifty cents in bulk for 2000 barrels. Early in the week the prices realized for crude were thirty-nine cents in bulk, but today we hear of sales as high as forty-two and a-half cents. Our market closes the week firm at forty-eight to fifty cents for prime summer yellow and forty-three to forty-five cents for prime crude. The bulk of the business for the week has been done at forty to forty-one cents for crude and forty-six cents for prime summer yellow, the sales during the past two days having been quite small, holders appearing afraid to sell much under this strong outlook and withdrawing their offers from the market, excepting at fifty cents for prime summer yellow. It is reported that there is a lot of crude that may be had at forty-five cents, although we doubt it, as our stock of oil here, aside from the leading company, is not very far from 5000 to 6000 barrels, and the two leading companies of the trade have no stock to sell, the one being a buyer of oil and the other having, it is reported, practically sold the main part of its holdings for the balance of the season. There has also been a sale of butter oil to Rotterdam at a price equivalent to fifty-three and one-half to fifty-four cents here, and more inquiries for oil from that quarter are in the

market. We think the sales of oil during the past week have reached at least 20,000 to 25,000 barrels, so that the already small stocks in the hands of mills have been materially reduced.

It will thus be seen that while an advance has been established in prices here, yet the disparity that has existed so long between the prices paid at the West and the prices ruling here still prevails.

The home business in compound lard is rather of a retail character, the large business being done from the West, where through rates of freight give them an advantage; still, the home demand is quite general, and it is causing lard refiners to inquire for oil, only to find, what we have before stated, that the stocks are very small, and what stock there is here is held firmly at full figures.

Sales of prime crude were made at forty to forty-one cents, and prime summer yellow at forty-six and forty-six and a-half cents on Monday and Tuesday, so that part of the advance has been pretty rapid, and brought about today by reason of the trades West and the export sale to Rotterdam. While the position of cottonseed oil by itself is a strong one, for reasons stated in our last week's letter, yet it must not be forgotten that the tight money market, the fears of gold shipments being resumed, the great weakness in the stock market, the difficulty of obtaining loans from banks excepting under favorable circumstances, and the impossibility of placing commercial paper, all combine to make business generally very restricted, to throttle speculation, and thus apply a very decided brake to the natural course of prices in oil.

We are, therefore, advising our friends to be cautious in being too confident of an extreme advance while these outside unfavorable influences remain as a depressing factor upon all kinds of business. It is always a good plan to let people have an article when they want it badly.

HOPKINS, DWIGHT & CO.

#### Cottonseed-Oil Notes.

ENDEAVORS are being made at Blooming Grove, Texas, to form a company to build a 50-ton cottonseed-oil mill at a cost of about \$45,000. Messrs. M. G. Young and J. B. Robinson are interested.

THE Houston (Texas) Oil Refinery & Manufacturing Co., to which a charter was recently granted, will commence at an early date the erection of a plant to refine cottonseed oil and manufacture products thereof.

THE site for the new cottonseed-oil mill at Austin, Texas, presents considerable activity. The work of construction is now fairly under way, and the railroad switch has been graded its entire length and a portion of the track placed in position. The mill is expected to be completed and in operation by the opening of the cottonseed season.

THE charter of the Dublin Cottonseed Oil Mill Co., of Dublin, Texas, has been so amended as to change the name to the Dublin Cotton Oil Co., and to increase the capital stock from \$50,000 to \$60,000. The charter of the Cottonseed Oil Mill Co. of Weatherford, Texas, has also been amended, changing the name to that of the Planters' Oil Co., of Weatherford.

THE subscribers to the oil mill and guano factory to be erected at Jug Tavern, Ga., met on the 14th ult. for temporary organization. R. L. Carithers, of Jug Tavern, was elected president, and Col. R. B. Russel, vice-president. The following gentlemen compose the directory: John D. Malsby, of Atlanta; W. P. De Laperriere, of Hoshten; W. I. Kelly, John S. Smith, A. A. Camp, J. Sikes and I. C. De Laperriere, of Jug Tavern. The building will be located convenient to the Gainesville, Jefferson & Southern and Georgia, Carolina & Northern Railroads.

## TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department, on page 262.]

### The Cotton-Duck Industry of Baltimore II.

It is impossible to give even an estimate of the value of the cotton-duck output of the Maryland section. For obvious reasons the milling companies will make no figures public nor even give any totals of the output in a special grade. According to the last census the total value of all cotton staples manufactured in Maryland for 1890 was \$5,457,792, but experts in the duck trade claim that the value for duck alone would be at least \$6,000,000, saying nothing of the yarns, calicoes and other goods which most of these mills make besides.

The labor question naturally enters largely into the manufacture of cotton duck. An impression seems to prevail that English weavers are employed in many of the Maryland mills. This is an error. Barring a foreigner here and there, the hands are Americans. At the Gary mills at Albertain many of the families are of Virginia descent. Shortly after the close of the war small farmers in the "Valley of Virginia" found themselves penniless and with families to support. Coming to Maryland they found work at the cotton-duck looms, and there they have continued since. The operatives at the Mount Vernon mills are in many cases Virginians, and one finds few others besides Virginians and Marylanders at Woodberry, the village where they live, with their families. The Mount Vernon people form a population of about 2500 at Woodberry. Over one-half are tenants of the company, which has erected several long rows of substantial stone tenements that are rented to the work-people. These tenements will hold from two to six families, or from six to thirty people, comfortably. Each family pays from \$5.00 to \$8.00 per month rent. The blocks are located on a hill above the mills, and are separated from the village proper by high fences. Many of the men, as is the case in the Woodberry Manufacturing Co.'s mills, have been in the same employ for forty years, and it is not uncommon to see three generations of the same family at work in the same mill. The tenement system is in vogue at the Woodberry Company's mills also. Its people are mostly located at Hampden, a village two miles north of Woodberry, also on Jones's falls. At the Laurel, Ellicott City and other mills the operatives are scattered among the villages in the vicinity. Of the 5200 hands in the State it is safe to say that not 100 are foreigners, and fully 4000 are of Maryland and Virginia descent.

The scale of wages in the several mills runs from \$3.00 to \$20.00 per week. The latter figure is paid only in a few cases where especially expert work is required. The weaving is done by females, who average from \$6.00 to \$9.00 on time, though a few experienced piece-workers will make as much as \$45.00 per month. The men's scale runs from \$8.00 to \$12.00 per week. Few of the boys and girls get over \$20.00 per month. Piece and time work are allowed in all the plants, and the above figures are about the average made during a fairly busy season. The State law prohibits any boy or girl under fourteen years of age or any woman from working over ten hours a day, and this is further amended by most of the milling companies, who make it a rule to allow no boy or girl to work who cannot read and write, or who is under fourteen years of age. It might be stated here that inquiries in the villages where the operatives live go to show that their health as a rule is excellent. The hours of work are from 6.30 or 7 A. M., according to the season, to 5.30

or 6 P. M., with an hour at noon. They seem to be contented with their situations, and the gaunt, haggard look so commonly seen in New England mill villages is not noticed among them. The proportion of men, women and children is about the same in one place as another. For example, among the 1700 employees of the Mount Vernon Company there are about 450 men, 850 women and 400 girls and boys under eighteen years of age. A close calculation shows that the cotton-duck operatives of the State support 50,000 people by their earnings.

The method of supplying the raw material to the mills has changed considerably in the last twenty years. It is not as easy to secure the cotton of a desirable quality as formerly. Most of the duck is made from middlings and inferior grades, except the sail cloth, and several of the companies get theirs through Baltimore cotton dealers. The Gary people have purchasing agents at different Southern points, and secure their supply in that way. The Carolinas and Georgia furnish the bulk of cotton used in Maryland, and quite a tonnage of Sea Island cotton finds its way by steamer to Baltimore for manufacturing purposes. The quantity shipped to the city for general sale, however, has fallen off at least 60 per cent. since the cotton shipments to Europe from Norfolk, Wilmington and Charleston have increased so largely, and the factory buyers do not have their pick as in former years, right at home. Thus far all the cotton needed for ordinary purposes can be bought in Baltimore, but ten years hence it may be necessary to procure it all through Southern purchasing agents. All the cotton used in the Jones's falls district is hauled there from the city by six and eight-horse teams just the same as fifty years ago. The manufactured products are brought to the city in the same way. It is cheaper to do this than to ship direct to and from the mills by rail, as the Northern Central Railway, which runs through the Woodberry and Hampden district, will make no reduction in its freight rates to secure the freight, so the manufacturers claim.

The competition which the Maryland duck-makers specially fear is from the South, although some of them claim that their plants have such advantages and such a monopoly of the trade that no competition can affect them. At present there are two duck mills at West Point, Ga., and one at Tallahassee, Ala., in operation, all of considerable extent, while a mill of 30,000 spindles is being built at Columbia, S. C. What effect these mills will have time only can tell. They are directly in the cotton districts, which saves expense of transportation, but much depends on the quality of the machinery used. It is conceded by all experts that the best machinery in the world is to be found in the Hampden and Woodberry mills for making cotton duck, but, to quote the words of one manufacturer, "anyone can get just as good machinery as we have if they're willing to pay for it. The makers are not restricted to supplying any particular factory or locality."

Strange to say, the New England mills are not considered as close competitors, although it is possible for them to turn out as heavy goods as any made in Maryland. They do not make the heavy grades of duck, however, in large enough quantities to make it felt in the general trade, either export or domestic. No duck is made in the West, although the demand coming from the makers of agricultural appliances has caused some talk of starting a mill in Ohio or Indiana, as far away as is that section from the cotton fields. Abroad the American duck has to compete with the products of English and Russian looms. Most of the English weaves of linen duck, however, are used for sails and too expensive to be put to such uses as car covers, etc.,

for which the American duck is purchased. In Russia competition is more active, but there the American grades hold their own, and, it is said, are being purchased in larger quantities yearly through New York exporting houses.

The development of the industry was simply due to a combination of circumstances. The Woodberry and Mount Vernon mills were not located on Jones's falls on account of any special natural advantages. There is much better water-power, also building sites and railway facilities, elsewhere in the State. Mr. Horatio Gambrell thought it cheaper to convert flouring mills into duck mills than to erect new structures. There were several flour mills on Jones's falls. He bought part of them, and thus formed the nucleus of the present plants with the assistance of Mr. Wm. E. Hooper. As the years went by the plants were gradually enlarged and improved machinery put in. The location might have been changed, but this step would have cost the companies what the buildings were worth anyway, to say nothing of the expense of moving. In figures the loss would have been fully \$175,000. So they concluded to stay where they were. The great business they do has been built up simply by turning out the best material and placing it where it has obtained a world-wide reputation. The duck made at the Woodberry and Mount Vernon mills, as well as the products of the other Maryland plants, is considered among the best made on the globe. That is the secret of its enormous sale.

An article of this character would be incomplete without giving a few figures showing the relative value of cotton manufacturing in Maryland to that of the Southern group of States, as compiled by the last census:

MARYLAND COTTON-MANUFACTURING STATISTICS.

|           | No. companies. | Capital invested. | Hands. | Wages.      | Miscel. expenses. | Cotton used, lbs. | Cost.       | Value product. |
|-----------|----------------|-------------------|--------|-------------|-------------------|-------------------|-------------|----------------|
| 1890..... | 15             | \$7,296,793       | 4,313  | \$1,134,445 | \$339,378         | 27,265,667        | \$2,972,432 | \$5,457,792    |
| 1880..... | 19             | 4,600,816         | 4,086  | 766,129     | .....             | 24,166,232        | 2,780,715   | 4,682,114      |

MARYLAND COTTON-MILL STATISTICS.

|           | Hands. |          |           | Spindles. | Looms. |
|-----------|--------|----------|-----------|-----------|--------|
|           | Males. | Females. | Children. |           |        |
| 1890..... | 1,249  | 2,069    | 938       | 158,930   | 2,695  |
| 1880..... | 1,226  | 1,877    | 939       | 125,706   | 2,425  |

NOTE.—While the figures show that there has been but an increase of 33,224 spindles and 540 looms in Maryland mills since 1880, improved machinery has greatly increased the capacity of both, and the figures are no standard to use in judging the output of the mills.

Regarding the difference between the estimate of the hands employed and the census figures, since the census was taken several factories have increased their forces, while some of the census estimates were taken during the dull season.

### The Lockhart Shoals (S. C.) Manufacturing Co.

Among the recent enterprises in South Carolina the development of the water-power of Lockhart Shoals, on Broad river, in Union county, is perhaps one of the most important. The Lockhart Shoals Manufacturing Co. was organized recently with a capital stock of \$500,000 for the purpose of developing these shoals and of erecting a large cotton mill. The company secured its charter at the last general assembly, and the capital stock has all been subscribed and the stockholders have paid in 20 per cent. to the treasurer. Col. Charles D. Farrow is president of the company, and with him are associated a representative board of directors. E. D. Sharkey, of Union, S. C., has the contract to build the operatives houses, six of which are nearly finished, and there will be over 100 ready by the time the mill is in operation. Messrs. Lockwood, Greene & Co., mill architects and engineers at Boston, have surveyed the grounds and will furnish the plans for the mill. The first mill,

which will be four stories, with 25,000 spindles, will be run without a dam, a small wing, costing about \$100 or \$150, being quite sufficient to turn the water into the canal. A railroad will be built from the shoals to connect with the Spartanburg, Union & Columbia road, which will afford ample transportation facilities. Three routes have been surveyed, but as yet no decision has been arrived at as to the choice. The road, however, will be completed by the 1st of August.

### Steam vs. Water-Power for Cotton Mills.

In answer to the question as to whether water or steam-power is cheaper for operating cotton mills, D. A. Tompkins, of Charlotte, N. C., says that the proper answer is that in some cases steam-power is cheaper and in other cases water-power is cheaper.

There are quite a number of factors that enter into the cost of water and steam-power, and each different factor differs in different cases. Some of the factors in the case of water-power are:

1. Interest on cost of dam.
2. Liability to floods which interfere with the running of the mill.
3. Freight rates.
4. Liability to droughts which interfere with the running of the mills.
5. Liability to damage of mill property by floods.
6. The operation of a company store.
7. Drayage.
8. Interest on the cost of water-power and development.

In the case of a steam plant some of the factors are:

1. Cost of steam plant.
2. Cost of coal.

3. Freight rates.
4. Proximity to city where hands are abundant.

Where a water-power can be had that can be developed at little cost, not too far from a railroad, where there are neither droughts nor floods, and where a country store can be run without too much competition, a water mill would have some advantage over a steam mill located on a railroad near a city, and on a railroad siding; but where the conditions of the water-power are not such as above recited, then a well-situated steam plant, if purchased with discretion and good judgment, would have the advantage.

In Augusta, Ga., the mills have been shut down as much as three months at a time by floods and washouts in the canal. Each year there is more or less trouble on account of floods or back water. For this reason steam-power in Charlotte is better than water-power in Augusta, and the average dividends in the respective places bear out this judgment.

On the other hand, there is a water-power at Henrietta, near Rutherfordton, that cost little to develop. Being on a mountain stream, it is neither subject to much flood or drought. Such a water-power is better than steam-power, and the average profits of that mill attest the correctness of this judgment.



**New Cotton Factory at Sumter, S. C.**

The Sumter Cotton Manufacturing Co., of Sumter, S. C., has been granted a commission by the secretary of state for the purpose of buying, selling and manufacturing all kinds of cotton goods. The amount of the capital stock is to be not less than \$200,000 or more than \$500,000, divided into shares of \$100 each. The incorporators are Abe Ryttenberg, W. M. Graham, Edward E. Rembert, Marion Moise, E. W. A. Bultman, A. S. Brown, F. Levi, Altamont Moses and W. A. Rauman. The plan adopted to secure subscriptions to stock is to call for 10 per cent. of the subscription at once and 1 per cent. per month until the total has been paid up.

**A Large Mill at New Orleans.**

The capitalists at New Orleans are about to demonstrate the advantages of that city as a cotton manufacturing centre, and have formed a stock company for the erection and operation of a cotton mill in that city. The new company is to be known as the Semmes-Parker Manufacturing Co., with a capital stock of \$100,000, with privilege of increasing it to \$250,000. The officers of the company are composed of the following well-known gentlemen: Hon. T. J. Semmes, president; William Parker, managing director; T. J. Semmes, Jr., secretary and treasurer, and Francis Joseph Semmes, William Parker, T. J. Semmes, Sr., and T. J. Semmes, Jr., stockholders. The company will make a specialty of hosiery and the very finest goods that can be manufactured out of cotton. The mill will at first give employment to 500 hands, and it is expected to be in operation by January 1, 1894. Mr. Parker, the manager of the new corporation, will leave shortly for the North and England, where he will study the latest machinery for the manufacture of cotton goods.

**A Metallic Drawing Roll.**

Manufacturers of cotton goods have long desired the advent of an efficient substitute for leather-covered drawing rolls, and this is now promised in the roll being introduced by the Metallic Drawing Roll Co., of Indian Orchard, Mass. Mr. H. L. Pratt, of Lewiston, Me., in a paper read before the New England Cotton Manufacturers' Association at its annual meeting in Boston on the 26th of April, gave a most complete description of the new roll and related the results of a trial which he gave it. He said that it showed so little friction on the collars that they would last through the lifetime of an ordinary frame, and that the bite of the roll and the draft is positive. Perfect attenuation of the sliver is allowed without injury; licking up from electricity and sticky weather is overcome; imperfect or cut work is eliminated; the product is increased and quality improved, and more leaf and dirt is extracted from the sliver. These all tend to give a product of superior quality, producing yarn of greater evenness and strength. At the works of the Merriek Thread Co. where the roll is in operation the results secured from it are remarkably good.

It is understood that the cotton factory at Columbia, S. C., will use this system on its drawing frames and spinning frames.

**Southern Textile Notes.**

MR. J. F. MOORE has recently purchased the Alsbaugh Cotton Mill at Taylorsville, N. C., and is now operating same. He intends shortly to put in new cards and spindles.

THE new mill at Pineville, N. C., has commenced operations.

THE Caraleigh Mills Co., of Raleigh, N. C., has issued \$100,000 of first mortgage bonds, due in five, ten and fifteen years. The proceeds are to be used for installing a considerable quantity of new machinery,

with the object of making the plant fully complete and giving it a capacity of 80,000 yards of cloth per week. The bonds are well secured by the property and plant of the company. W. G. Church is president.

THE Erwin Mills at Durham, N. C., have been put in operation. The cotton carded is excellent, and the goods from which it will be woven will be of the highest grade manufactured.

MR. PHILIP SCHIFF, of Charlotte, N. C., contemplates building a cotton factory near that city. He holds a tract of land which will be investigated for water-power, and if a decision to build is reached a joint stock company will be formed.

THE stockholders of the Sibley Manufacturing Co. held their annual meeting on April 27. Reports for the year ending March 31 were submitted and pronounced very satisfactory. The directors were empowered to retire \$50,000 of the bonds, and will declare a dividend of 3 per cent.

THE amount of stock necessary to secure the building of a cotton factory at China Grove, N. C., has been subscribed and work on same will probably soon be commenced.

THE Wilson (N. C.) Cotton Mills have completed their new engine-house and office building and are installing a new Corliss engine. A new speeder was added to the mill lately and card clothing and other attachments have been put in.

THE Patterson Manufacturing Co. was organized at Concord, N. C., on April 27 with the following directors: D. B. Cottrane, D. F. Cameron, L. D. Duval, R. J. Holmes and J. C. Corriher. Mr. J. W. Cannon was elected president, and I. Frank Patterson, secretary and treasurer. The company will install 4000 spindles for the manufacture of cotton yarn.

A FEW prominent gentlemen of Norfolk, Va., are forming a close corporation to erect a 10-sett knitting mill at South Norfolk. Mr. D. Lowenberg can probably give any desired information.

MESSRS. YOUNT & SHRUM, J. R. Gaither, Solomon Shrum and associates have determined to build a cotton factory at Newton, N. C., and will commence work on same immediately. They will equip the plant with 2000 spindles.

SUBSCRIPTIONS to the new cotton factory at Opelika, Ala., have reached the sum of \$100,000, thus insuring the erection of the plant. Incorporation papers will be prepared at once and the work on the buildings will start in a few weeks.

THE following Davis & Elkins Coal Companies have consolidated their interests under the name of the Davis Coal & Coke Co.: Fairfax Coal & Coke Co., Davis & Elkins Coal, H. G. Davis Coal, Henry Coal & Coke and Davis Coal & Coke companies. The principal office will be in New York, with branch offices at Greenwich, N. J., Philadelphia, Baltimore, Washington, and Piedmont, Thomas and Davis, W. Va. The company has a capital of \$3,000,000, and owns 49,000 acres of coal and mineral lands in Mineral, Grant, Tucker and Randolph counties, W. Va. Stephen B. Elkins is president of the company; Thomas B. Davis, vice-president, and Fairfax Landstreet, general manager. The general manager's headquarters will be at Davis City, W. Va. The Piedmont office will be a distributing point for all local orders, and will be in charge of H. G. Buxton. A. C. Finley, of Piedmont, is made superintendent of the Thomas mines, with headquarters at Thomas. Charles D. Junkins, also of Piedmont, goes to Davis as bookkeeper for the new company.

REPORT of the Mexican National system for the year ending December 21, 1892, just issued, shows gross earnings, in Mexican money, \$4,756,029, expenses \$3,055,416, net \$1,700,613, or \$1,360,490 in gold.

**Charleston, S. C., Cotton Trade.**

By Col. J. W. Avery.

Charleston, S. C., has taken high rank as an American cotton port, often in favorable seasons running over the half-a-million-bales mark. The highest points she has reached was 628,187 bales in 1880-81; 565,207 in 1882-83 and 557,744 in 1890-91. New Orleans, Galveston and Savannah alone have outstripped her.

In the general decrease of 1891-92 Charleston fell off by comparison less than any other South Atlantic port.

Charleston has always had a very active and enterprising set of cotton merchants; her railway connections have been admirable, while her marine facilities have always been varied and convenient. Probably no seaport anywhere is better fixed for handling cotton than Charleston. And with constantly improving means for handling cheaply all of the leading staples of the South besides cotton; with her close connections with the great West, and increased ability to draw its grain, flour and meat for shipment to foreign countries under a system of freight rates on a parity with other routes, and by rail lines equal to any; with the South Carolina Railroad enfranchised and rehabilitated, and the harmonious link of a strong system, working with all might and unity and wisdom for the city; with deep water assured soon, letting into her harbor and along her wharves the largest ships of the world laden with commerce; and with complete and permanent direct trade with foreign lands established, scattering great volumes of Western and Southern stuff abroad, and in return diffusing foreign imports in rich currents over the South and West—with all these things Charleston will flower into her full commercial destiny.

The growth of her cotton receipts from 250,761 bales in 1869-70 to the highest point of 628,187 illustrates her capacity for trade expansion.

In 1891 she distributed her cotton thus:

|                        | Bales.  |
|------------------------|---------|
| Liverpool.....         | 142,237 |
| Havre.....             | 15,651  |
| Continental ports..... | 248,166 |
| Total foreign.....     | 406,054 |
| New York.....          | 128,758 |
| Interior by rail.....  | 169     |
| Total coastwise.....   | 128,927 |
| Grand total.....       | 534,921 |

Comparing the price of middling cotton in 1891-92 in Charleston, Savannah and New York we find evidence of the value of Charleston as a superior cotton market:

|                        | Charleston.<br>Cents. | Savannah.<br>Cents. | New York.<br>Cents. |
|------------------------|-----------------------|---------------------|---------------------|
| October 9, 1891.....   | 8 1/2                 | 7 3/4               | .....               |
| November 6, 1891.....  | 7 3/4                 | 7 1/2               | .....               |
| December 25, 1891..... | 7 1/2                 | 7                   | .....               |
| May 27, 1892.....      | 7 1/2                 | 7                   | .....               |
| August 5, 1892.....    | 7 1/2                 | 7 3/16              | 7 1/2               |
| August 26, 1892.....   | 7 1/2                 | 6 3/4               | 7 1/2               |

Nature, like human mechanics and art, makes finished products that represent the highest excellence of their kind. The Sea Island or long-staple cotton bears this relation to the great textile material of the world. It is the ideal cotton and grows only on parts of the ocean coast of South Carolina, Georgia and Florida and a little in Texas, and requires some subtle combinations of climate and soil that are only found in certain portions of these favored States. The region that produces this aristocratic cotton is very limited, the whole crop being last year only 55,000 bales, and its largest reach has been 69,063 in 1891. The potential elements of fertility and atmosphere that bring this imperial fibre seem incapable of duplication, whatever they may be. This cotton, like the fur of some animals, beats all rivals. It is longer, finer and of superior fibre, works up better and brings two or three times the price of the best upland cotton.

And curiously enough, the very highest,

most costly grade of this cotton is grown in the State of South Carolina. Neither Georgia nor Florida can compete with the Palmetto State in the quality or value of their long-staple cotton.

Carolina's production of this cotton has run as follows: 1865-66, 5630 bales; 1866-67, 11,001; 1867-68, 4577; 1868-69, 5608; 1869-70, 7334; 1870-71, 7218; 1871-72, 8755; 1872-73, 13,156; 1873-74, 8759; 1874-75, 7400; 1875-76, 4756; 1876-77, 4911; 1877-78, 6448; 1878-79, 7133; 1879-80, 9966; 1880-81, 14,845; 1881-82, 10,642; 1882-83, 15,715; 1883-84, 8415; 1884-85, 12,863; 1885-86, 7010; 1886-87, 7933; 1887-88, 8573; 1888-89, 9618; 1889-90, 9256; 1890-91, 16,215; 1891-92, 11,504.

Of the whole Sea Island crop Charleston handled 7259 bales in 1890, 13,481 in 1891 and 9813 in 1892. Of the receipts of 1891, the largest of any, Charleston shipped 8130 bales abroad—7324 to Liverpool, 679 to Havre and 127 to Continental ports—and 4787 bales to New York. In 1891-92 Charleston reversed her shipments, sending 6896 North and 2798 bales abroad.

It is interesting to note how the foreign and American consumption of this kind of cotton has varied. In 1866-67 the foreigners took 30,706 bales and America 1597, and this proportion continued until 1873-74, when America began to double up. In 1880-81 America took 11,270 bales and foreigners 24,395. The consumption has run since 1884-85 as follows, showing that America is now appreciating her royal breed of cotton and striving to buy and use the lion's share:

| Seasons.     | Foreign exports. | American consumption. |
|--------------|------------------|-----------------------|
| 1884-85..... | 21,565           | 17,358                |
| 1885-86..... | 16,428           | 19,973                |
| 1886-87..... | 26,925           | 20,435                |
| 1887-88..... | 20,580           | 19,683                |
| 1888-89..... | 23,326           | 20,132                |
| 1889-90..... | 28,238           | 19,141                |
| 1890-91..... | 39,111           | 26,602                |
| 1891-92..... | 27,431           | 32,312                |

South Carolina still has the honor of raising the finest cotton in the world, and Charleston is the market for it.

**Baltimore Exports and Imports for April.**

THE Merchants' Exchange reports that the value of foreign exports from Baltimore in April was \$4,263,894; custom-house receipts were \$336,525.73, and from miscellaneous sources \$5,617.71, making a total of \$342,143.44. During the month thirty-nine steamships and ten sailing vessels entered from foreign ports, and in the same time forty-eight steamships and twenty-two sailing vessels cleared for foreign ports. The principal foreign exports were 552,896 bushels corn, 717,263 bushels wheat, 280,660 barrels flour, 16,717 cases canned goods, 1690 hogsheads tobacco, 11,293 bales cotton, 1876 cattle, 3,197,530 pounds lard, 9126 tons coal, 1,172,744 gallons refined petroleum; value \$4,263,894. Among the foreign imports were 27,195 tons iron ore, 89,586 boxes tinplates, 16,745 packages chemicals, 1300 tons agricultural salt, 124,229 bunches bananas, 103,000 coconuts, 26,792 bags coffee, 18,974 casks cement, 2181 bags sugar, 5096 bags guano, 2500 bags rice, 1280 sacks, 525 tons, 17,032 bushels salt and other merchandise.

It is stated that an English company having a capital of \$400,000 will soon begin the work of developing the deposits of asphalt and oil wells situated near Anza, in the states of San Luis Potosi, Vera Cruz, Tamaulipas and elsewhere in the republic of Mexico. The company will also carry on business as pitch manufacturers, oil distillers and refiners, coke burners, miners and smelters, metal founders and engineers.

THE Chamber of Deputies in the city of Mexico has granted permission to the Fupusteto Iron Co. to build a wharf at its works near Euseñada.

## Manufacturers' Record.

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BALTIMORE, MAY 5, 1893.

### Notice to Advertisers.

*The last forms containing advertisements are closed on Tuesday afternoon. New advertisements or changes should be received not later than Tuesday noon to ensure attention in the issue bearing date of the following Friday. Reading matter should be in our office on Wednesday, although late news can be received early Thursday morning.*

THE prompt issuance by the Department of State of the letter received from Consul Fowler at Ningpo, China, in which correspondence is requested from manufacturers of small launches, is a good move, and one which, if kept up, will greatly increase the usefulness of our consular service. Such information it is desirable to act on promptly, and when delayed for a month or more, as has often been the case with the consular reports, its value is impaired. In this case the letter was written at Ningpo on March 10, received in Washington April 22 and published April 27.

THE discussion as to whether or not the jetty company was complying with its contract to maintain twenty-six feet of water in South Pass below New Orleans has been effectually settled by the survey just completed by the government engineer, Major Quin, which showed from twenty-six to thirty feet clear throughout the pass. From his report it appears that the difficulty which led to complaint being made by New Orleans ship agents was from a bar which had formed above the pass and which has washed away within the past week. While it is satisfactory to know that there is no ground for complaint against the jetty company, the fact that a bar can exist at a point where it will obstruct navigation should receive due attention. Its removal obviates any further immediate difficulty, but is no guarantee that another will not form at any time during high water.

It seems very much like "sending coals to Newcastle" to manufacture cotton goods in this country and send them to England, and particularly when they go right into the heart of the cotton manufacturing district—Manchester. Yet, that is what is now being done with goods made in a certain cotton factory in the South. Besides doing this, the same factory and others are making and shipping goods on the orders of concerns

located at Fall River and other Northern cotton manufacturing points. The fact that the South is leading in the manufacture of certain classes of cotton goods, and is steadily forcing its way into the market with the higher grades, is universally admitted by spinners, and it is only a question of time when the finest grades will be made there and compete with the best material made in the world. Already the Southern product has more than a standing in the trade—it has a well-assured position, which the market has been forced to yield to it, and one which it will always hold and advance.

AN effort is now being made in Pennsylvania to pass a law compelling every one selling canned goods in the State to put on the label their name and the date when the cans were sealed. The purpose of this is to prevent canners from putting a fictitious name on second quality goods, and to give the purchaser information as to how long the goods have been put up. It is claimed by those who are urging the passage of the bill that canned goods deteriorate after being kept for a certain time, and that the purchaser should have some means of ascertaining how fresh they are. While this may be true to a certain extent, canned goods, if properly put up and kept in a cool place, will remain sweet for a long time, and no reputable cannery could afford to allow an inferior grade of goods to go on the market labeled as its product. The part of the bill requiring the name of the canner to be placed on the label is good, and if carried out would accomplish both purposes, as canners would be compelled to exercise every care to turn out a product which would be a credit to them.

### Appointment of a State Geologist for Georgia.

The appointment of Prof. W. S. Yates to the position of State geologist in Georgia, which has recently been made by Governor Northen, will undoubtedly prove a satisfactory one. Professor Yates is well known as an earnest worker in the science of economic geology, and his long experience in the National Museum at Washington, where he was assistant curator in the department of mineralogy and geology, will give his work a scientific as well as practical value. It is to be hoped, however, that he will be allowed more latitude than his predecessor, and particularly will have the power to direct, appoint and discharge those who are under him. It was through the lack of this, and not because of any fault of his own, that Dr. Spencer, the former geologist, was unable to perform satisfactory service. No geological survey nor any other kind of work can be made a success unless all parts move in unison. This can only be accomplished when every branch or department is under the direction and entire control of one person, and he must be, in this case, the State geologist.

### Improving the Cotton-Handling System.

The offer of \$1000 in gold for the best plans and specifications for an improved cotton warehouse which has been made by the German-American Insurance Co. expires on June 17, and four days there-

after the committee selected to examine the plans will meet in Atlanta, Ga. This liberal offer will be productive of great good to Southern cotton interests. The matters to be especially considered in the plans have been economy and convenience of handling and freedom from fire hazard. The latter, while of great importance, has not so general and important a bearing on both planter and merchant as the former. Handling cotton as is now done is admittedly expensive. Storage charges, high as they are, do not always cover the expense which the warehouseman is put to. From the time a bale of cotton is received in a warehouse until it is sold and removed there is an expense, which may be greater or less, depending on the manner in which the bales are piled and the number of times they may have to be turned out before final sale. Insurance and interest on the money invested in the warehouse are the charges other than labor. Necessarily the planter pays for this, and with it he gives a certain amount of cotton which is carried away by the grader, and also stands the risk of damage and loss from water or fire.

The methods of handling cotton from the field to the compress are today but little better than thirty years ago. To be sure, steam is in use, the gins are improved, and by means of exhaust pipes cotton is drawn from the field-wagon into the stockroom. But the other part—picking, carrying from field to gin, shipping the bale to the warehouse and handling there and at the compress—is all done "by main strength and awkwardness."

In the warehouse the greatest expense is occasioned from the fact that the bales are piled up one upon another, sometimes four or five tiers, and if the bottom bale is sold it is necessary to remove all others in order that it may be secured. The prime trouble is, therefore, in the method which sells a specified bale and not a specified grade. If a certain grade was sold without regard to what bale it was, the cotton could be piled, each grade separate, and the buyer take any bale of that grade. Sampling would, of course, have to be done by an authorized agent of the cotton exchange, but that could easily be done. The only objection to such a system is the entirely absurd so-called "system" of grading now in use. If this were continued each shed would require something like 900 separate compartments, and if each had floor space for twenty bales, the warehouse, apart from walls, would cover over four acres of ground, which, if in a city, would be worth more than all the cotton stored in it.

This entire cotton-grading system must be improved upon, and this will be recognized after a while. Each effort leading toward improvement, such as the one being made by the German-American Insurance Co.; in the slight change in the form of cotton contracts in New Orleans; in the strong efforts made last fall by St. Louis and other exchanges for a better form of contract, and in other smaller ways, is leading in the right direction, and will eventually accomplish the desired end. In the meantime planters will have the choice between drifting along with the tide or taking active steps to right what is unquestionably an abuse.

### The Agricultural Products of the South.

There appears to be an impression among those who have seen but little of the South, particularly during the past two years, that the Southern planter, or farmer, is so absolutely dependent upon cotton that if that single crop fails, ruin and desolation to the entire farming community will follow. While it is true that a certain number of cotton planters still hold to the time-honored plan of planting nothing but cotton, so as to accumulate debts in a respectable manner, the time when this can be called a universal condition for the South has happily passed, and a new and broader farming industry taken its place.

To say a new industry implies that the South has always heretofore placed its dependence on the cotton crop. This may be misleading. Prior to the war there was a greater diversity in the crops of that section than even now, and it would be more proper to say that at this time the country is recovering the balance which was then observed between its various crops, and with this is feeling the advantages which have come through newer methods, improved machinery, better railroad facilities, and the development of its vast mineral resources.

In 1892 the cotton crop of the South was valued at about \$315,000,000. The corn crop was valued at \$248,000,000, wheat over \$40,000,000 and oats about \$25,000,000. These three products then were of equal value with the cotton crop. Adding to them the value of tobacco raised, over \$22,000,000; of rice, about \$10,000,000; Florida oranges, about \$3,500,000, and of garden truck, fruit and vegetables shipped North, between \$40,000,000 and \$50,000,000, the total value of the products named amounts to about \$400,000,000.

It was only in the years immediately following the war that cotton was raised almost to the exclusion of other products. This was because the people were almost penniless and cotton was the one crop upon which advances could be secured. The condition of things has been steadily improving, and within the past two years the lesson taught by planting too much cotton has been so impressed upon everyone engaged in it that there has been a general effort to raise more foodstuffs, and particularly to provide the food needed on each plantation or farm.

The Southern farmer today is not solely dependent upon his cotton crop for a living. In west Tennessee, Arkansas, Mississippi, Louisiana and Texas, while some few are following the old plan of purchasing food and planting cotton, the vast majority are raising diversified crops, and each succeeding year will see this plan carried out in a greater degree. In the States of Georgia and North and South Carolina cotton-raising will soon hold second place, as to value, among the agricultural products of the States, not necessarily because less will be raised, but because of the increase in the production of cereals, fruits and vegetables. Through the western part of the cotton belt such a condition will not be likely to exist, but cotton will never again be raised in place of food products, as has been done in the past.



## GENERAL NOTES.

## Brief Mention of Various Matters of Current Interest.

DURING April permits for buildings valued at \$87,752 were issued at San Antonio, Texas.

THE ninth annual convention of the Texas Bankers' Association will be held in San Antonio, Texas, on May 16, 17 and 18. The local committee on arrangements have been at work for some time past and have agreed upon a program which embraces discussions on the leading financial topics of the day.

THE collector of customs of the port of Jacksonville, Fla., reports the exports for the month of April as follows: Lumber, 5,377,500 feet coastwise and 464,503 feet foreign; cross-ties, 18,000; shingles, 16,400; oranges, 29,500 boxes; tobacco, 1400 boxes; general merchandise, 14,400 packages; cottonseed meal, twenty-four tons, and household goods, 1000 packages.

GENERAL AGENT G. T. BADEAU, of the Mexican Northern Railroad, was in Birmingham, Ala., last week, and closed contracts for Alabama coal for the use of the road, and also arranged to ship considerable coal and iron into Mexico. Trade in the latter country has increased greatly in latter years, and America is fast forging ahead of England in this direction.

THE Atlanta (Ga.) *Constitution* of April 30 contains an interesting interview with President H. M. Atkinson, of the Southern Banking & Trust Co., in which Mr. Atkinson states that a large amount of Northern capital will be interested in Atlanta at an early day. A portion of this money, he says, may be expended in building a cotton mill with 30,000 spindles.

F. B. CHADDOCK has commenced the work of building a furnace at Oviedo, Fla., for use in the manufacture of insecticide. The parties interested in the plant are McCall & Lee and J. W. C. Parker & Co. Fruit-growers and others who use the wash for spraying the trees for rust, mites and other insects will now have a chance to purchase this preventative from a home concern.

WORK will soon be begun on the new Chesapeake & Ohio grain elevator at Richmond, Va., contract having been let to F. H. Roucher, of St. Joseph, Mo. The building is to be covered with corrugated iron, with a brick boiler-house, four elevators, two of which will be two-leg elevators, together with double-hopper and wagon scales. The elevator's capacity will be 100,000 bushels.

A CONFERENCE was held in Savannah on the 28th ult. between the turpentine men and R. G. Erwin, attorney for the Savannah, Florida & Western Railway, the result of which was an agreement to build ten turpentine tanks of 6000 gallons capacity each on the company's wharves. The cost of the tanks will be \$15,000. The action of the conference is subject to the approval of Mr. Plant.

RECENTLY some limestone quarried near Monte Sano, at Huntsville, Ala., was examined and found to belong to the Knox dolomite group. When polished the stone takes a high lustre and fine finish. It is somewhat harder than ordinary white or variegated marble, but presents such a handsome appearance when dressed and finished that it is likely to find a good position in the market.

ANOTHER ship-yard is to be established at Orange, Texas. Work will begin soon on two model barges by the contractors. The dimensions of these vessels will be 170 feet in length, thirty-two feet beam and nine feet depth of hold. Yellow pine is

found in such quantities in the vicinity, and this lumber being so well adapted for ship-building, the business will in the near future assume large proportions.

CAPT. J. B. JAMES, who has charge of several large orchards at Fort Valley, Ga., owned by Northern capitalists, received orders on the 25th ult. to close a deal for between 2500 to 3000 acres of Houston county lands. This land will be planted in fruits of all kinds, but the largest acreage will be in peaches. The closing of this deal means an investment of not less than \$100,000 of money in Houston county.

THE number of fruit and vegetable packers in Harford county, Md., this year, it is estimated, will not exceed 300. They will confine themselves, as a rule, to packing the products of their own farms. It is thought a few new canning establishments will be opened, as the reports from distributing centres indicate that the demand will be very large. The estimated number of acres to be planted for corn to be packed is 5000, and for tomatoes 10,000.

MESSRS. J. F. JORDAN & Co., of Greensboro, N. C., were appointed some time ago to get up an exhibit of tobacco for the World's Fair at Chicago, the specimens to come from the Piedmont section of North Carolina. The exhibit has recently been completed and shipped to Chicago. It comprised bright and dark mahogany wrappers, white wrappers, smokers and stuffers, etc. Some of the specimens cost on the market eighty-five to ninety-five cents.

W. A. PASCHALL, superintendent of the experimental tobacco farm four miles from Waycross, Ga., has just finished transplanting fifty-three acres of tobacco. About 100 acres of the weed have been planted in the community. Mr. Paschall has had considerable experience in the cultivation of tobacco in Virginia, the Carolinas, Kentucky and Tennessee, and pronounces the result of his experiments at Waycross as highly satisfactory and the leaf grown of a superior quality.

A NUMBER of Roanoke business men and bankers are about to organize a local fire insurance company. The capital stock will be limited to \$200,000, divided into shares of \$10.00 each, and all but about \$60,000 of the stock has already been subscribed for. It is the purpose of the company to do an extensive agency business in Virginia. A meeting of the projectors of this enterprise was held on May 4 to perfect the final arrangements for commencing business.

At the Collins gold mine, seven miles from Columbia, Goochland county, Va., a nugget weighing forty-two pennyweights was found on the 24th ult. The company operating these mines is now busy putting up hydraulic mining machinery, and will be ready for extensive operations this week. At the Mathews & Thurston mines a site has been selected for a steam placer plant. The Columbia Amalgamator Quartz and Placer Mill will be erected and operations commenced about the 15th of May.

THE Union Springs (Ala.) *Herald* says: "If the weekly papers do not deviate from the truth, Alabama must be one great scene of industry, for nearly every exchange that comes to us is filled with accounts of building that is going on in the smaller towns in the State; but we will venture to say that none of these towns can boast of more industry in this line than can Union Springs, for in nearly every direction the sound of the workman's hammer may be heard, and the drummers who come among us ask if a boom has struck the city."

THE Merchants' Exchange of Nashville, Tenn., has published a letter protesting

against the report circulated to the effect that the failure of the banks in that city was likely to cause the embarrassment of many merchants. The letter states that although weeks have elapsed since the failure of the banks, there has not been a single failure of note growing out of these troubles, and the credit of merchants in Nashville is as good as in any city in the Union, as can be seen by the reports of the commercial agencies.

THE official list of delegates from Great Britain's literary and scientific and musical societies to the congresses to be held in Chicago has been almost completed. Literature will be represented by Sir Edwin Arnold, music by Alexander Campbell Mackenzie and John Frederick Bridge, pedagogy by Prof. Sylvanus Thompson, engineering by Sir Benjamin Baker and Prof. Francis Elgar, electrical work by William Henry Preece, Prof. Sylvanus Thompson, Alexander Siemens and Major Cardew, and art by Sir Frederick Leighton.

THE Eastern Building and Loan Association, with the home office at Syracuse, N. Y., has opened a real-estate bank in Sumter, S. C., with a capital of \$100,000, divided into 1000 shares at the par value of \$100, already subscribed. At the organization on the 28th ult. the following gentlemen were elected to fill the various positions: W. M. Graham, president; R. P. Monaghan, vice-president; A. C. Phelps, secretary and treasurer; Major M. Moise, attorney; A. J. China, M.D., W. F. Rhame, N. O'Donnell, J. B. Carr and J. A. Mood, M.D., directors.

THE Birmingham Nut and Bolt Works at Birmingham, Ala., is employing about twenty-five hands and running full time. The machinery used is of the most improved pattern, and enables the works to turn out a large daily product. The nuts and bolts are used by railroads for locking rails, and by carriage and wagon builders. Recently work was commenced on a new product, heel taps for plows, and the demand for them has increased so rapidly that additional machinery had to be purchased. The entire product is now taken by the Southern Agricultural Works, of Atlanta, Ga.

THE Agricultural and Mechanical College of Alabama has forwarded to Chicago a large collection to be exhibited at the World's Fair. Among the most important items in the collection may be mentioned that from the department of civil engineering, embracing over sixty drawings representing the work of the different classes; specimens of thirty varieties of cotton from the agricultural department and several samples of tobacco grown at the station last year; ten specimens of typical Alabama soils and sub-soils showing characteristic formations. There is a large number of pictures and drawings showing the running of cotton-ginning machinery by electricity; also apparatus, chemicals and products from the chemical department to be used in the chemical laboratory at the World's Fair.

THE trade of Augusta, Ga., increased from \$57,000,000 in 1888 to \$72,000,000 in 1891, an increase of 25 per cent. in three years. The cotton factories now located in the western part of the city represent \$6,000,000 capital, employ 4500 hands and use 80,000 bales of raw material yearly. In 1881 the receipts of cotton in the city amounted to 62,771 bales; in 1891 the receipts were 268,000 bales. Census figures of 1890 show that there were 7449 homes in the city, containing a population of 43,290; of these 1251 were owned by the occupants and 6198 rented, indicating that many of them were occupied by newcomers to the city. One of the great advantages of the city is a power canal nine miles in length, which it is claimed gives

400,000 horse-power, to operate the manufacturing plants in the city.

AN important addition to the mercantile interests of Columbus, Ga., is to be the establishment of a shoe company in that city which proposes to do business throughout the South. This is to be known as the J. K. Orr Shoe Co., and will be composed of several business men of Columbus and a syndicate of capitalists of Boston, Mass. The capital stock is to be \$1,000,000, all paid in. The New England people who have become interested in the J. K. Orr Shoe Co. include several shoe factory owners. One is Charles H. Jones, president of the Commonwealth Shoe & Leather Co. at Whitman, Mass., which is said to own the largest shoe factory in the world, turning out 7000 pairs daily. Another stockholder, E. W. Fuller, is at the head of the Derry Shoe Co., of Derry, N. H. The Columbus store will occupy a three-story building recently erected.

SOME time ago a description was given of the method to be followed in constructing chert roads in Montgomery county, Ala. One stretch of six miles running south from Montgomery is now completed, and the *Advertiser* of that city, in describing it, says that it is thirty feet wide and as hard and smooth as a floor. It is beautifully graded and slopes so gradually as to make it impossible for water to stand, no matter how hard the rain may fall. It is in contemplation to sod with Bermuda grass on each side of the roadway, thus making still less the danger of washes and holes in the road. The people of Montgomery county who have seen this road have only words of praise for the board of revenue. The change for the better is so great that it creates a desire to have every foot of prairie roadway in this county similarly treated. The cost is nothing in comparison with the good accomplished.

THE collection of insurance business statistics recently prepared by the comptroller-general of South Carolina was issued on the 20th ult. It gives all desired information in regard to the volume of business done in insurance throughout the State up to December 31, 1892. At that date there were forty-nine fire, twenty-nine life and fifteen accident companies doing business. The comptroller says that the total amount of fire losses incurred in 1892 in forty-seven companies was \$511,844; total amount of premiums received \$542,259; per cent. of losses to premiums received 93.7 per cent.; total amount of life insurance in force in twenty-five companies \$33,534,774; losses incurred in twenty-two companies \$318,189; premiums collected in twenty-one companies \$771,343; ratio of losses to premiums collected 41.2 per cent.; amount of accident insurance in force in thirteen companies \$3,806,786; losses incurred in thirteen companies \$20,639; premiums collected \$30,554; ratio of losses to premiums collected 67.5 per cent.

## Starting a New Town.

STANDING STONE, TENN., April 27. *Editor Manufacturers' Record:*

The Nashville & Knoxville Railroad is now graded through to this place, and developments here have commenced. The Whitaker coal mine has been opened, and near here a new town called Monterey has been laid off. Everything seems promising, and unless all signs fail there is going to be plenty of work in these parts. The railroad will be pushed on to Knoxville as rapidly as plenty of labor and money will drive it, and when completed it will open one of the finest sections in the South. Timber, coal, fine farming lands and an abundance of the purest air in the world are the birthrights of this region. The place cannot fail to grow. J. J. WHITAKER.

## RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department, on page 263.]

## Along the Norfolk &amp; Western's Ohio River Extension.

[From our own Correspondent.]

WHEELING, W. VA., May 1.

The Norfolk & Western Company last week purchased the last of the Higginbotham reservation at Bluefield, consisting of half an acre of ground in the central part of the city, and including the old Higginbotham residence. The price paid was \$25,000. It also purchased a farm of 100 acres lying on the outskirts of the town. Just what use is to be made of these purchases is not known, but it is rumored that the company will build repair shops, and will also make improvements in its facilities for handling the heavy coal traffic presented at this point, and which has been growing continually since the line was opened. As yet, comparatively little of the coal output of the Norfolk & Western mines has been sent West, but it will not be long till the traffic to that section will begin in earnest, making necessary better facilities than are now at hand.

The branch line at Dingess, which was begun a few weeks ago, is being pushed with all possible rapidity, and it will not be many months till the coal from the mines now opening along the branch will be upon the market. There are six of these mines which will be ready for shipping coal as soon as the road is ready to receive it.

The Peerless Coal Co., which has its mines ready to begin shipping coal, has been held back by the non-arrival of a part of its machinery, but expects to begin shipments in a few days. The railroad company has promised Manager Zacharisa to put in the tracks to his tipples within the next week.

The same complaint which is heard among the mine operators along almost every railroad in West Virginia is heard here, though it is not as loud as at some other points. This complaint is on account of the inability of the company to furnish cars as fast as they are needed. The demand for coal seems to be good everywhere in West Virginia, and many mines are compelled to curtail production on account of inability to ship it when gotten out. It is stated that some concerns are contemplating the erection of machinery for building coal piles for the storage of the surplus over the capacities of the railroads.

The Upland Coal & Coke Co. at Elkhorn is building a block of 100 coke ovens at its plant.

The Houston Coal & Coke Co. at Elkhorn will put in a new engine, the old one being unable to meet the additional requirements recently added to it.

The contract has been signed for an excelsior factory at Kenova. It will manufacture wood excelsior for upholstering mattresses and packing breakable wares of all sorts. The projectors of the new enterprise are Huntington (W. Va.) gentlemen.

Timbermen in this section who have poplar are right in the front rank now. Prices are good and demand almost unprecedented. Every log that can be had is taken almost at the seller's price, and buyers are hustling through the country to find timber that is not offered for sale. Some poplar logs were sold at the mouth of Big Sandy river last week at twenty-two cents a cube. This rush for timber is having a bad effect upon the small mills, as they cannot compete with the big fellows who have capital back of them and who can save in some other way the difference in price which they offer.

It is said in Bluefield that the Standard Oil Co. will build large cooper shops at

that place. The report is that the Standard has closed a deal for a site, and that arrangements have been made for the timber supply needed for the new enterprise.

## The Norfolk &amp; Western Meeting.

At the annual meeting of the companies comprised in the Norfolk & Western system held at Roanoke May 8 the annual report, as detailed in the MANUFACTURERS' RECORD, April 21, was read and received. The increase in gross earnings over the year 1891 was 8 per cent. Charles H. Mellon was appointed assistant treasurer and S. H. Gaillard, assistant to president. Directors of the system were all re-elected. They are: F. H. Kimball, C. H. Clark, Charles Hacker, Joseph I. Doran, R. S. Brock, S. A. Crozer, A. J. Dull, U. L. Boyce, Walter H. Taylor, Robert Fleming, Howland Davis, Henry Whelen, Jr., and Wm. Vivian.

## Georgia Central Trouble.

Receiver Comer's plan to reorganize the Georgia Central system has received two serious blows. One is a suit filed by Alexander Brown & Sons at Savannah to declare void the Comer-Hollins agreement, to remove Comer as receiver and to appoint new receivers who are opposed to the Comer plan. The other is the refusal of the Augusta & Savannah, a part of the system, to go into the reorganization, and the appointment of Col. J. H. Averill, of Savannah, as individual receiver of the Port Royal & Western Carolina, another line of the system. An attempt to appoint a receiver for the Montgomery & Eufaula branch was defeated by the Comer party. Alexander Brown & Sons represent large Baltimore interests and have been opposed to Receiver Comer from the start. In the meantime eight suits, amounting to \$258,600, have been filed against the Central at Savannah on certificates of indebtedness. The plaintiffs are the Mercantile Trust Co. of New York and individuals.

## Annual Report of the E. T., V. &amp; G.

General Manager Hudson's report of the East Tennessee, Virginia & Georgia system for the year ending June 24, 1892, has been made public. Briefly mentioned, the gross earnings were \$6,048,804.39 and expenses \$4,629,986.49, leaving \$1,418,817.90 for net earnings, from which the taxes must be deducted, amounting to \$220,507.64, showing \$1,198,310.26 actual earnings. During the year the corporation operated four divisions, embracing the main line and sixteen branches, in all 1265 miles of railway. The improvements to property and equipment during the year amounted to \$638,134.14. Four bridges were built and repaired, and four passenger and freight stations built. The Knoxville (Tenn.) shops were completed at a cost of \$33,855.31, and a coaling station near Rome, Ga., constructed costing \$9,083.56. New sidings were put in to the amount of \$10,378.75. New rolling stock consisted of sixty box cars, purchased for \$32,139.85, and 500 box cars, purchased under a 10-year trust, upon which the payment for 1891-92 was \$50,625. An important item in this account was the discount on securities sold for construction, amounting to \$307,500, or nearly half the entire sum spent for improvements, etc.

The system has under construction a part of the East Tennessee & Alabama Railroad, and a survey has been made for the Tennessee & Ohio, a proposed line.

## Western Maryland Report.

At the April meeting of the Western Maryland Railroad Co., held April 26 at the offices in Hillen Station, Baltimore, there was considered an approximate report for the fiscal year ended March 31. The gross earnings for the six months ending March 31 were \$538,913.51, expenses

of operation \$391,058.14, an increase compared with the corresponding period last year of \$115,127.48 in earnings and \$65,844.36 in expenses; net increase in earnings \$49,283.12. For March, 1893, the report shows gross earnings of \$94,131.47, operating expenses \$67,530.07, net earnings \$26,591.40. The increase in net earnings was \$4500.11 over the same period of 1892. The increase in earnings of the system is due largely to the connection made with the Baltimore & Ohio at Cherry Run, W. Va., which enables the Western Maryland to handle a large freight business between the Baltimore & Ohio and Reading roads. The probabilities are that the earnings of the Western Maryland for June, July and August will show a large increase on account of the summer passenger traffic to the Blue Ridge mountains. This road has a monopoly of the Maryland business to the several resorts in that locality.

## Railroad Notes.

NEW shops of the Baltimore & Ohio at Benwood, W. Va., were used for the first time May 1.

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## COAL AND COKE.

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The coal vein at this point is eight feet six inches thick, and has the following section at a distance of 250 feet from the outcrop:

| Slate roof.      | Inches. |
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| Bituminous coal. | 19      |
| Slate.           | 17      |
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### A New Coke-Drawing Machine.

The following description of the trial of a patent coke drawer is given by the Connellsville (Pa.) *Courier*: "The machine arrived at the Valley works of the H. C. Frick Coal Co. last week, and was set up by the representatives of the American Coke Drawer Co., of Cincinnati, Ohio. On Monday it was given a trial, and the test made was considered very successful by all those who witnessed it, but would have been more satisfactory had the track on which the machine runs in front of the ovens been several inches lower. This was the only drawback.

"Twelve ovens were arranged at Valley with which to give the patent coke drawer a fair trial. The only change necessary on the ovens was a slight widening of the oven doors. In front of the ovens a standard-gage track was laid, and on this the engine and machine were placed. The total weight of the drawer is 35,000 pounds. It is run by an automatic cut-off engine entirely enclosed in a dust-proof covering. The steam is made by a thirty horse-power upright tubular boiler. The fuel used is coke. The machine is worked by one man, who is seated between the engine and boiler, and manipulates a long rake or scraper with the aid of two levers. With the right-hand lever the rake is operated in and out, and with the left-hand lever it is swung from one side of the oven to the other. The coke drawer is moved up and down the track by a foot-treadle used as a throttle. On the end of the rake

is a semi-oval cast-iron shoe about two and a-half feet in width and the same in length. Attached to the base of the shoe is an apron, which drops down when the coke is drawn as far as the door and allows it to fall into a shute. As much coke as will come through an oven door can be drawn with the shoe. The rake on the machine is run on a cog and travels at the rate of 150 feet per minute. At Valley it is arranged for a 12-foot oven, but can be made to suit any sized oven. As the coke falls from the oven it is caught in the cast-iron shute, which is about two feet deep by two feet wide, and on the bottom of which is an endless belt of iron bars three or four inches wide. The shute extends twenty-one feet over all, and then forty-four feet to the car on the yard track. Coke can be loaded by the shute seventy-five feet from the oven. Stock coke is piled on the yard by taking off part of the shute.

"The patent coke drawer has few gears, and all are made of aluminum bronze to insure long wear and to guard against breakage. The water supply is carried in a tank in the centre of the machine, which has a capacity of 150 gallons.

"At Valley two ovens were drawn, one

the expense involved in haulage alone much greater than, in their opinion, it should be. The mule has had his day as the principal factor in the haulage question, and the cable is under test, with results more or less satisfactory. The electric locomotive for mine work is comparatively a newcomer in the haulage field, but it has already acquired considerable prestige and bids fair to supersede both the mule and rope haulage.

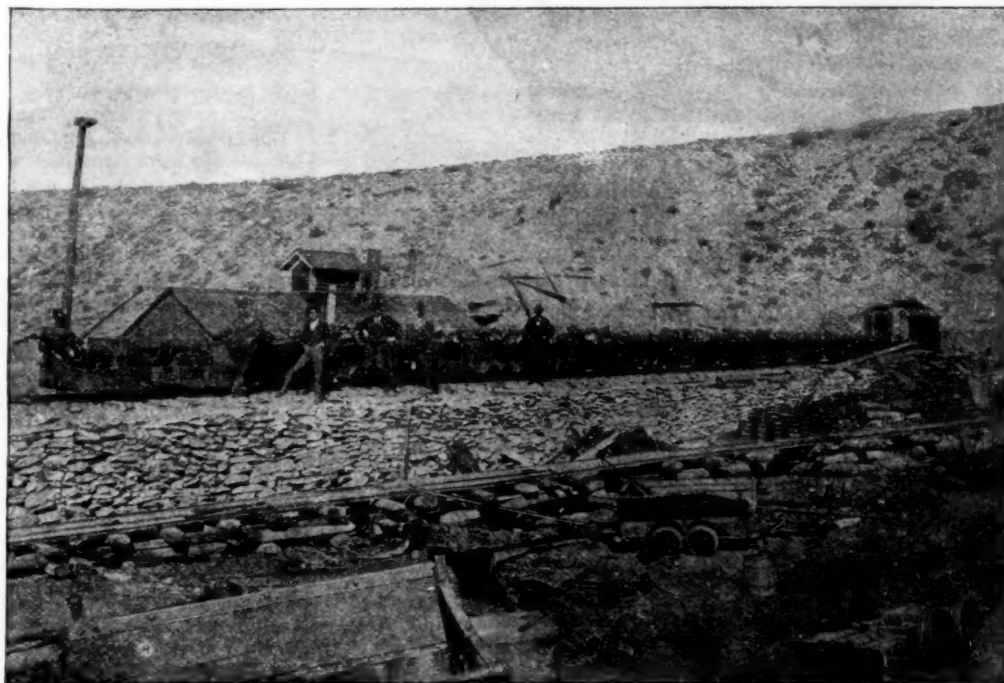
An excellent example of the work done by the electric locomotive in coal mining is shown at the Rock Springs coal mine at Rock Springs, Wy. This plant was installed by the mining department of the Northwest General Electric Co.

About a mile from the mouth of the mine the power station, containing a dynamo of eighty horse-power driven by a steam engine, is located. Current from this is delivered at a pressure of 550 volts, which allows of a drop of about 10 per cent. between the power-house and the mine.

The feed or supply wire is No. 000 hard-drawn bare copper, making a complete metallic circuit. The trolley line is furnished with a circuit breaker about thirty feet from the mine mouth, so that the current may be cut off from the mine when the

The result has simply been to remove all fear they had of it. As I stated in my letter, this is a very dry mine, and so the only way one can get shocked is to stand on a rail and touch the wire. I have been shocked several times myself while handling the locomotive through carelessness. The other day a balky mule ran right into the wire with his head. He was knocked down. He got up and ran into it again three times and was dropped in every instance. After that he simply turned around and walked off to his work. I ought to remark that the shock does not knock a man down or burn him. The only description I can give of its effect from personal experience is a tingling sensation, lasting, in the heaviest shock I received, not more than one or two minutes afterwards in the hand that made contact."

This last is a fact which should reassure mine owners who have any fears of danger from contact with the trolley wire. The element of danger once recognized as entirely absent, the electric locomotive can compete on equal grounds with any other system of haulage, with many points in its favor which cannot be urged by its competitors. We expect to see its adoption become general, both on account of the



ELECTRIC HAULAGE IN COAL MINES.

in nineteen and one in seventeen minutes. This is less than half the time that the work can be done by hand. At Cincinnati, where the new machine is in operation, thirty ovens are drawn daily at an average of one every fifteen minutes. There seems to be only one objection to the patent drawer. No select coke can be loaded unless stocked and then picked. There is an advantage, however, which partially offsets this objection. But very little coke is lost in the cinders, and the average run of the coke will not be broken as fine as if drawn by hand.

"The final tests of the patent coke drawer will be awaited with interest, though the ones already made have proved that it is practical. Whether the cost of the machines will exceed the labor expense they will save is to be found out. All the parties interested in the American Coke Drawer Co. are Cincinnati capitalists. The officers are: F. C. Weir, president; J. F. Neave, vice-president, and N. O. Goldsmith, treasurer."

### Electric Haulage in Coal Mines.

The problem of economic haulage in mines has lately received considerable attention from mine owners, who have found

locomotive is employed for switching purposes outside.

The locomotive used is of the G. L. M. General Electric Co. type, of 30-inch gage, sixty horse-power. Its usual speed in this instance is about eight miles an hour. The cars used are of the ordinary coal-mine type, weighing each when filled about 3000 pounds, when empty about 1000 pounds.

The economy attained by the use of this locomotive is strikingly illustrated by the fact that by its aid thirty cars were run from the loading point to the end of the track, a distance of about 6000 feet, there dumped and returned to the mine in twenty minutes. On another occasion the locomotive drew after it thirty loaded cars and pushed ahead sixteen others from end to end of the road without difficulty. The track is built of 35-pound T rails and has several switches and spurs necessary to the rapid handling of the cars.

It is not inappropos here to quote from a letter from the expert giving an account of contact with the bare wire and the results thereof:

"Several men have been shocked since our plant began operating, but the effect is only momentary, and they only laugh at it.

economy of its operation as well as its convenience of manipulation.

### Coal and Coke Notes.

MR. J. G. FOUSHEE has discovered a deposit of coal on his lands near Glenn's Mills, Moore county, N. C.

THE Virginia & Alabama Coal Co. has let contract for the erection at its Coal Valley (Ala.) mines of a large coal tippie and a new mining-machinery plant.

THE Virginia & Alabama Coal Co. at Patton, Va., has let contract for a complete coal tippie and mining machinery for its Coal Valley mines.

A REPORT from Knoxville, Tenn., states that all the coal-mining companies in the Jellico district, six in number, have decided to combine and form an organization with a capital of \$250,000. Charter has been applied for under the title of the Southern Jellico Coal Co.

THE Mary Lee Coal & Railway Co., of Birmingham, Ala., has recently purchased the steamer Kanawha, which went ashore on Santa Rosa island, near Pensacola, Fla. The price paid was \$3000. The company will refit the vessel and use it in the coal export trade from Mobile.

## RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department, on page 263.]

## Along the Norfolk &amp; Western's Ohio River Extension.

[From our own Correspondent.]

WHEELING, W. VA., May 1.

The Norfolk & Western Company last week purchased the last of the Higginbotham reservation at Bluefield, consisting of half an acre of ground in the central part of the city, and including the old Higginbotham residence. The price paid was \$25,000. It also purchased a farm of 100 acres lying on the outskirts of the town. Just what use is to be made of these purchases is not known, but it is rumored that the company will build repair shops, and will also make improvements in its facilities for handling the heavy coal traffic presented at this point, and which has been growing continually since the line was opened. As yet, comparatively little of the coal output of the Norfolk & Western mines has been sent West, but it will not be long till the traffic to that section will begin in earnest, making necessary better facilities than are now at hand.

The branch line at Dingess, which was begun a few weeks ago, is being pushed with all possible rapidity, and it will not be many months till the coal from the mines now opening along the branch will be upon the market. There are six of these mines which will be ready for shipping coal as soon as the road is ready to receive it. The Peerless Coal Co., which has its mines ready to begin shipping coal, has been held back by the non-arrival of a part of its machinery, but expects to begin shipments in a few days. The railroad company has promised Manager Zacharisa to put in the tracks to his tipples within the next week.

The same complaint which is heard among the mine operators along almost every railroad in West Virginia is heard here, though it is not as loud as at some other points. This complaint is on account of the inability of the company to furnish cars as fast as they are needed. The demand for coal seems to be good everywhere in West Virginia, and many mines are compelled to curtail production on account of inability to ship it when gotten out. It is stated that some concerns are contemplating the erection of machinery for building coal piles for the storage of the surplus over the capacities of the railroads.

The Upland Coal & Coke Co. at Elkhorn is building a block of 100 coke ovens at its plant.

The Houston Coal & Coke Co. at Elkhorn will put in a new engine, the old one being unable to meet the additional requirements recently added to it.

The contract has been signed for an excelsior factory at Kenova. It will manufacture wood excelsior for upholstering mattresses and packing breakable wares of all sorts. The projectors of the new enterprise are Huntington (W. Va.) gentlemen.

Timbermen in this section who have poplar are right in the front rank now. Prices are good and demand almost unprecedented. Every log that can be had is taken almost at the seller's price, and buyers are hustling through the country to find timber that is not offered for sale. Some poplar logs were sold at the mouth of Big Sandy river last week at twenty-two cents a cube. This rush for timber is having a bad effect upon the small mills, as they cannot compete with the big fellows who have capital back of them and who can save in some other way the difference in price which they offer.

It is said in Bluefield that the Standard Oil Co. will build large cooper shops at

that place. The report is that the Standard has closed a deal for a site, and that arrangements have been made for the timber supply needed for the new enterprise.

## The Norfolk &amp; Western Meeting.

At the annual meeting of the companies comprised in the Norfolk & Western system held at Roanoke May 8 the annual report, as detailed in the MANUFACTURERS' RECORD, April 21, was read and received. The increase in gross earnings over the year 1891 was 8 per cent. Charles H. Mellon was appointed assistant treasurer and S. H. Gaillard, assistant to president. Directors of the system were all re-elected. They are: F. H. Kimball, C. H. Clark, Charles Hacker, Joseph I. Doran, R. S. Brock, S. A. Crozer, A. J. Dull, U. L. Boyce, Walter H. Taylor, Robert Fleming, Howland Davis, Henry Whelen, Jr., and Wm. Vivian.

## Georgia Central Trouble.

Receiver Comer's plan to reorganize the Georgia Central system has received two serious blows. One is a suit filed by Alexander Brown & Sons at Savannah to declare void the Comer-Hollins agreement, to remove Comer as receiver and to appoint new receivers who are opposed to the Comer plan. The other is the refusal of the Augusta & Savannah, a part of the system, to go into the reorganization, and the appointment of Col. J. H. Averill, of Savannah, as individual receiver of the Port Royal & Western Carolina, another line of the system. An attempt to appoint a receiver for the Montgomery & Eufaula branch was defeated by the Comer party. Alexander Brown & Sons represent large Baltimore interests and have been opposed to Receiver Comer from the start. In the meantime eight suits, amounting to \$258,600, have been filed against the Central at Savannah on certificates of indebtedness. The plaintiffs are the Mercantile Trust Co. of New York and individuals.

## Annual Report of the E. T., V. &amp; G.

General Manager Hudson's report of the East Tennessee, Virginia & Georgia system for the year ending June 24, 1892, has been made public. Briefly mentioned, the gross earnings were \$6,048,804.39 and expenses \$4,629,986.49, leaving \$1,418,817.90 for net earnings, from which the taxes must be deducted, amounting to \$220,507.64, showing \$1,198,310.26 actual earnings. During the year the corporation operated four divisions, embracing the main line and sixteen branches, in all 1265 miles of railway. The improvements to property and equipment during the year amounted to \$638,134.14. Four bridges were built and repaired, and four passenger and freight stations built. The Knoxville (Tenn.) shops were completed at a cost of \$33,855.31, and a coaling station near Rome, Ga., constructed costing \$9,083.56. New sidings were put in to the amount of \$10,378.75. New rolling stock consisted of sixty box cars, purchased for \$32,139.85, and 500 box cars, purchased under a 10-year trust, upon which the payment for 1891-92 was \$50,625. An important item in this account was the discount on securities sold for construction, amounting to \$307,500, or nearly half the entire sum spent for improvements, etc.

The system has under construction a part of the East Tennessee & Alabama Railroad, and a survey has been made for the Tennessee & Ohio, a proposed line.

## Western Maryland Report.

At the April meeting of the Western Maryland Railroad Co., held April 26 at the offices in Hillen Station, Baltimore, there was considered an approximate report for the fiscal year ended March 31. The gross earnings for the six months ending March 31 were \$538,913.51, expenses

of operation \$391,058.14, an increase compared with the corresponding period last year of \$115,127.48 in earnings and \$65,844.36 in expenses; net increase in earnings \$49,283.12. For March, 1893, the report shows gross earnings of \$94,131.47, operating expenses \$67,530.07, net earnings \$26,591.40. The increase in net earnings was \$4500.11 over the same period of 1892. The increase in earnings of the system is due largely to the connection made with the Baltimore & Ohio at Cherry Run, W. Va., which enables the Western Maryland to handle a large freight business between the Baltimore & Ohio and Reading roads. The probabilities are that the earnings of the Western Maryland for June, July and August will show a large increase on account of the summer passenger traffic to the Blue Ridge mountains. This road has a monopoly of the Maryland business to the several resorts in that locality.

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### A New Coke-Drawing Machine.

The following description of the trial of a patent coke drawer is given by the Connellsville (Pa.) *Courier*: "The machine arrived at the Valley works of the H. C. Frick Coal Co. last week, and was set up by the representatives of the American Coke Drawer Co., of Cincinnati, Ohio. On Monday it was given a trial, and the test made was considered very successful by all those who witnessed it, but would have been more satisfactory had the track on which the machine runs in front of the ovens been several inches lower. This was the only drawback.

"Twelve ovens were arranged at Valley with which to give the patent coke drawer a fair trial. The only change necessary on the ovens was a slight widening of the oven doors. In front of the ovens a standard-gage track was laid, and on this the engine and machine were placed. The total weight of the drawer is 35,000 pounds. It is run by an automatic cut-off engine entirely enclosed in a dust-proof covering. The steam is made by a thirty horse-power upright tubular boiler. The fuel used is coke. The machine is worked by one man, who is seated between the engine and boiler, and manipulates a long rake or scraper with the aid of two levers. With the right-hand lever the rake is operated in and out, and with the left-hand lever it is swung from one side of the oven to the other. The coke drawer is moved up and down the track by a foot-treadle used as a throttle. On the end of the rake

is a semi-oval cast-iron shoe about two and a-half feet in width and the same in length. Attached to the base of the shoe is an apron, which drops down when the coke is drawn as far as the door and allows it to fall into a shute. As much coke as will come through an oven door can be drawn with the shoe. The rake on the machine is run on a cog and travels at the rate of 150 feet per minute. At Valley it is arranged for a 12-foot oven, but can be made to suit any sized oven. As the coke falls from the oven it is caught in the cast-iron shute, which is about two feet deep by two feet wide, and on the bottom of which is an endless belt of iron bars three or four inches wide. The shute extends twenty-one feet over all, and then forty-four feet to the car on the yard track. Coke can be loaded by the shute seventy-five feet from the oven. Stock coke is piled on the yard by taking off part of the shute.

"The patent coke drawer has few gears, and all are made of aluminum bronze to insure long wear and to guard against breakage. The water supply is carried in a tank in the centre of the machine, which has a capacity of 150 gallons.

"At Valley two ovens were drawn, one

the expense involved in haulage alone much greater than, in their opinion, it should be. The mule has had his day as the principal factor in the haulage question, and the cable is under test, with results more or less satisfactory. The electric locomotive for mine work is comparatively a newcomer in the haulage field, but it has already acquired considerable prestige and bids fair to supersede both the mule and rope haulage.

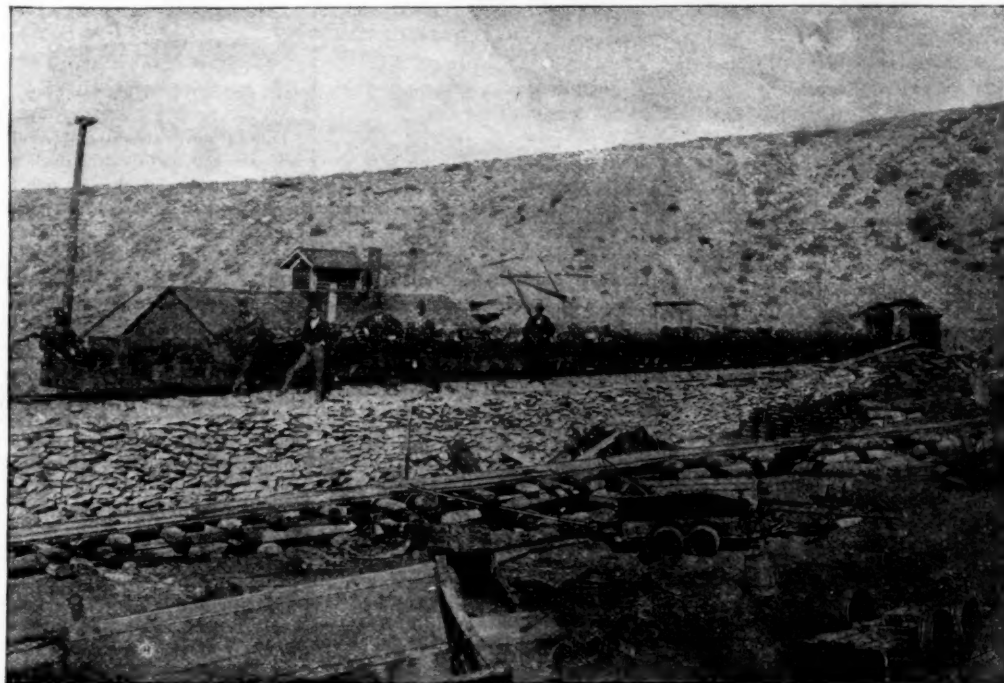
An excellent example of the work done by the electric locomotive in coal mining is shown at the Rock Springs coal mine at Rock Springs, Wyo. This plant was installed by the mining department of the Northwest General Electric Co.

About a mile from the mouth of the mine the power station, containing a dynamo of eighty horse-power driven by a steam engine, is located. Current from this is delivered at a pressure of 550 volts, which allows of a drop of about 10 per cent. between the power-house and the mine.

The feed or supply wire is No. 000 hard-drawn bare copper, making a complete metallic circuit. The trolley line is furnished with a circuit breaker about thirty feet from the mine mouth, so that the current may be cut off from the mine when the

The result has simply been to remove all fear they had of it. As I stated in my letter, this is a very dry mine, and so the only way one can get shocked is to stand on a rail and touch the wire. I have been shocked several times myself while handling the locomotive through carelessness. The other day a balky mule ran right into the wire with his head. He was knocked down. He got up and ran into it again three times and was dropped in every instance. After that he simply turned around and walked off to his work. I ought to remark that the shock does not knock a man down or burn him. The only description I can give of its effect from personal experience is a tingling sensation, lasting, in the heaviest shock I received, not more than one or two minutes afterwards in the hand that made contact."

This last is a fact which should reassure mine owners who have any fears of danger from contact with the trolley wire. The element of danger once recognized as entirely absent, the electric locomotive can compete on equal grounds with any other system of haulage, with many points in its favor which cannot be urged by its competitors. We expect to see its adoption become general, both on account of the



ELECTRIC HAULAGE IN COAL MINES.

in nineteen and one in seventeen minutes. This is less than half the time that the work can be done by hand. At Cincinnati, where the new machine is in operation, thirty ovens are drawn daily at an average of one every fifteen minutes. There seems to be only one objection to the patent drawer. No select coke can be loaded unless stocked and then picked. There is an advantage, however, which partially offsets this objection. But very little coke is lost in the cinders, and the average run of the coke will not be broken as fine as if drawn by hand.

"The final tests of the patent coke drawer will be awaited with interest, though the ones already made have proved that it is practical. Whether the cost of the machines will exceed the labor expense they will save is to be found out. All the parties interested in the American Coke Drawer Co. are Cincinnati capitalists. The officers are: F. C. Weir, president; J. F. Neave, vice-president, and N. O. Goldsmith, treasurer."

### Electric Haulage in Coal Mines.

The problem of economic haulage in mines has lately received considerable attention from mine owners, who have found

locomotive is employed for switching purposes outside.

The locomotive used is of the G. L. M. General Electric Co. type, of 30-inch gage, sixty horse-power. Its usual speed in this instance is about eight miles an hour. The cars used are of the ordinary coal-mine type, weighing each when filled about 3000 pounds, when empty about 1000 pounds.

The economy attained by the use of this locomotive is strikingly illustrated by the fact that by its aid thirty cars were run from the loading point to the end of the track, a distance of about 6000 feet, there dumped and returned to the mine in twenty minutes. On another occasion the locomotive drew after it thirty loaded cars and pushed ahead sixteen others from end to end of the road without difficulty. The track is built of 35-pound T rails and has several switches and spurs necessary to the rapid handling of the cars.

It is not inappropos here to quote from a letter from the expert giving an account of contact with the bare wire and the results thereof:

"Several men have been shocked since our plant began operating, but the effect is only momentary, and they only laugh at it.

economy of its operation as well as its convenience of manipulation.

### Coal and Coke Notes.

MR. J. G. FOUSHEE has discovered a deposit of coal on his lands near Glenn's Mills, Moore county, N. C.

THE Virginia & Alabama Coal Co. has let contract for the erection at its Coal Valley (Ala.) mines of a large coal tippie and a new mining-machinery plant.

THE Virginia & Alabama Coal Co. at Patton, Va., has let contract for a complete coal tippie and mining machinery for its Coal Valley mines.

A REPORT from Knoxville, Tenn., states that all the coal-mining companies in the Jellico district, six in number, have decided to combine and form an organization with a capital of \$250,000. Charter has been applied for under the title of the Southern Jellico Coal Co.

THE Mary Lee Coal & Railway Co., of Birmingham, Ala., has recently purchased the steamer Kanawha, which went ashore on Santa Rosa island, near Pensacola, Fla. The price paid was \$3000. The company will refit the vessel and use it in the coal export trade from Mobile.





## LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department, on page 262.]

### Lumber Directory.

Readers of the MANUFACTURERS' RECORD who may be in the market for lumber of any description are recommended to the directory of Southern lumber manufacturers and dealers which appears among the advertising pages.

### New Lumber Development in West Virginia.

Negotiations are now pending between the Chesapeake & Ohio Railroad Co. and the Rochester Boom & Lumber Co. which will likely result in the establishment of one of the largest mills ever erected in West Virginia at the town of Marlinton, on the Greenbrier river, in Pocahontas county. The Rochester Company was chartered some months ago, and has purchased about 35,000 acres of timber land located on both forks of Greenbrier river above Marlinton. It is composed of the following well-known business and professional men: Hon. John T. McGraw, of Grafton, W. Va.; C. M. Warner and A. Ames Howlett, of Syracuse, N. Y.; Eli M. Upton, Henry H. Craig, John N. Beckley and Marsenus H. Briggs, of Rochester, N. Y. The capital stock of the concern is \$1,000,000, all of which will be invested in the enterprise. The land owned by the company is splendidly located for timbering operations, being cut by both forks of the Greenbrier river in such a way that all the timber may be floated to the mills at Marlinton. The land is stocked throughout with oak, poplar, cherry, black birch and ash. Spruce is the most plentiful of all the woods, and cherry follows a close second. In a personal letter a few days ago Mr. Briggs, who is president of the company, said it was the intention to build a saw mill which will have a capacity of at least 100,000 feet a day, and that possibly a larger one would be built. The company will also put in dry-kilns, planing mills and appliances for manufacturing the product of the forest complete on the ground. Mr. T. C. Pfaunder, of Defiance, Ohio, is said to have prepared plans for the operating plant which call for a most complete establishment. It is reported, on what seems to be good authority, that the West Virginia & Pittsburg Railroad, of which Senator Camden, of West Virginia, is president, and which is now in operation into Webster county, the county adjoining Pocahontas, will be built through to Marlinton and beyond to a connection with the Chesapeake & Ohio this summer or next, doubling the transportation facilities of the section on which the Rochester Company will operate. In that event there will be other and equally extensive development in the same region by other timber land owners. It will also open the Pocahontas county iron-ore fields, which are known to possess such richness, and which have lain so long waiting for transportation facilities.

### New 12-Inch Four-Sided Molder.

The machine shown in the accompanying illustration is a new column 12-inch four-sided molder made by the Rowley & Hermance Co., of Williamsport, Pa. This machine has the strength and capacity of an inside molder, and at the same time the conveniences of adjustment of the outside molder. It is very heavy, strong and durable, thus being adapted to the heaviest as well as the finest grades of work.

The frame being heavy and cast in one piece, twisting is prevented, and consequently all bearings must keep in line, while the heavy, solid column at the rear end of the machine affords a suitable and substantial support for the table, under head, etc. The heavy outside bearing for

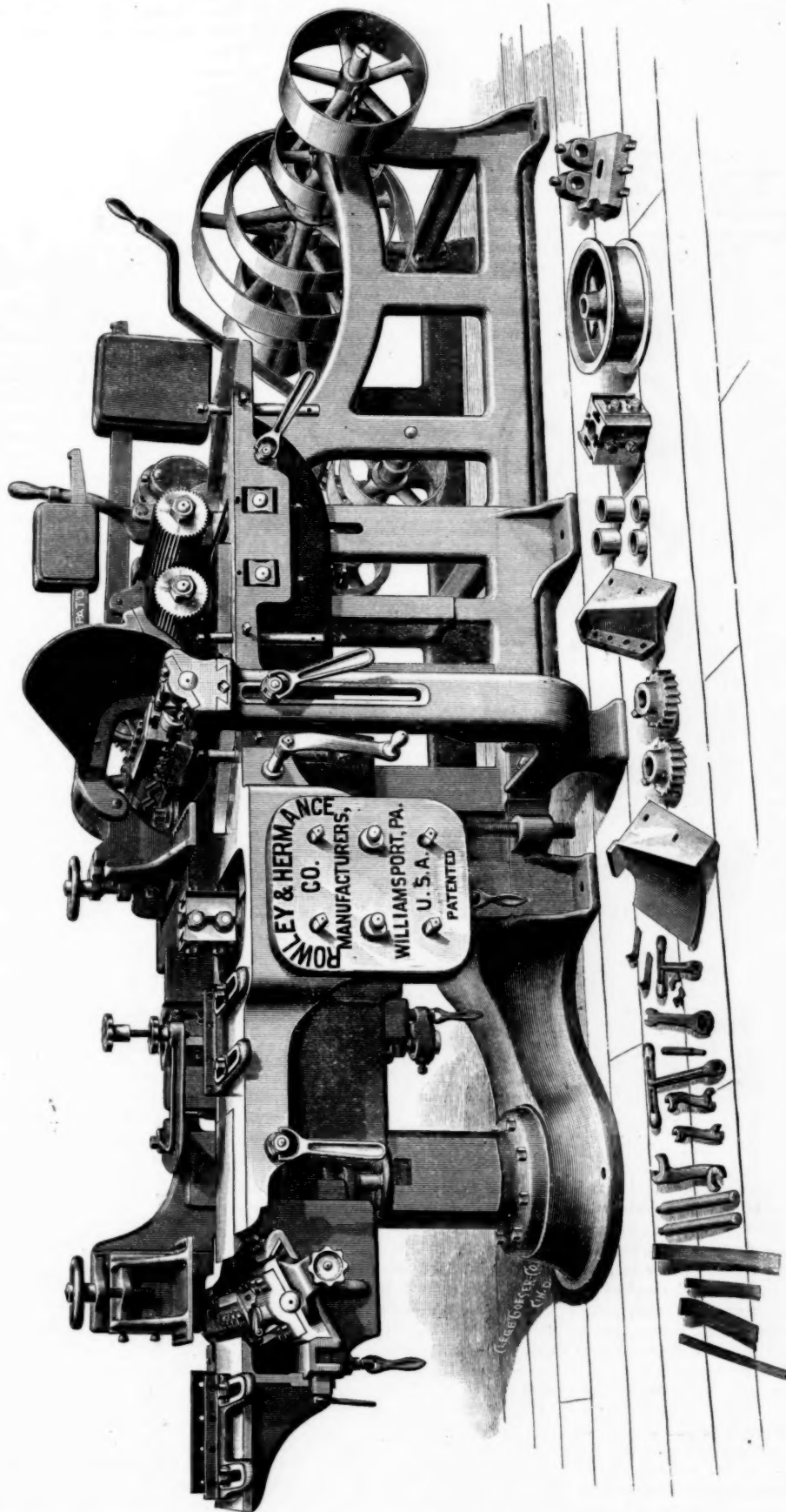
the top arbor extends to the floor, and is braced by a solid connection to the base of the frame, with the top secured by a heavy bolt passing through the table and frame, forming an additional support. The feed works consist of four feed rolls, each five inches in diameter, two above and two below, all driven by a powerful system of gearing. The top feed rolls raise parallel

for the belt that drives the top head, by which the slack is instantly taken up from the front or working side of the machine. In running narrow molding or other light work, the strain can be taken off the belt.

The expansion driving the bottom rolls is so positive that the feed remains as perfect when the table is lowered to the full capacity of the machine as when at its

adjustable from the front of the machine. The top head has a lateral movement, and the bottom head both lateral and vertical adjustment. The machine has a number of other improvements which add greatly to its value. It will dress twelve inches wide and four inches thick on four sides, and the table will lower twelve inches.

Each machine is furnished with five



NEW COLUMN 12-INCH FOUR-SIDED MOLDER.

with the bed and bear their full weight evenly on all parts of the work, whether narrow or wide, thus insuring a strong, positive and steady feed at all times. There are four rates of feed on the machine, thirty, forty-five, thirty-eight and fifty-five lineal feet per minute. The feed works are started and stopped with a binder. An adjustable tightener is provided

highest position. The upper rolls can be instantly raised by the lever shown in the illustration. An important feature is the patent compensating spring which is placed under the weight ball to relieve the chip-breaker from jar.

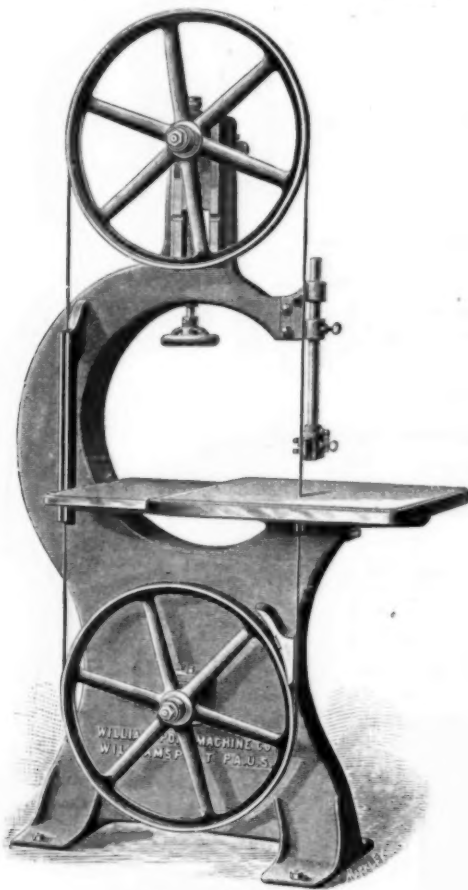
The arbors are made from steel and unusually heavy. The side heads raise and lower with the table, both spindles being

heads slotted on four sides, two plain knives for each head, one double spring rest, one extra double flange feed pulley, four collars, two extra pressure shoes, two extra feed spurs and the necessary wrenches and springs, as shown in the cut. The tight and loose pulleys are twelve inches in diameter by eight inches face, and should run 850 revolutions per minute.

**Improved Band Saw.**

The accompanying illustration shows a new band saw with iron tilting table, which is being placed before lumber workers by the Williamsport Machine Co., of Williamsport, Pa.

In building this machine the aim has been to furnish a band saw with as few parts as possible and still have a complete and substantial instrument. It is built entirely of iron and steel, and arranged with iron tilting table. The improved device for raising and lowering the upper wheel is unsurpassed for simplicity and ease of adjustment. There is a spring to compensate for the contraction and expansion of the saw. The upper wheel can be adjusted to make the saw run further forward or back on the wheel by a thumb-screw, without tightening or loosening any screws or bolts. The lower wheel is also adjustable. The wheels are twenty-six or thirty-six inches in diameter, being turned perfectly true, and pure gum covering is placed around each wheel and ground true. The frame is cast in one piece.



IMPROVED BAND SAW.

The spindle carrying upper wheel runs in long connected boxes. The guide raises and lowers with the guide bar to adjust itself to thick and thin lumber, and has a capacity of twelve inches under the guide.

The machine is equally suited for bracket, piano or organ factories, pattern work, planing mills, and, in fact, general woodworking in either hard or soft wood. With each machine is furnished one half-inch saw blade, set and filed, also one pair brazing tongs. When desired a patent band-saw guide will be fitted to the machine at a slight additional cost.

**Southern Lumber Notes.**

THE Surry Lumber Co.'s plant at Dendron, Va., was recently destroyed by fire, causing a loss of \$600,000. It will doubtless be rebuilt very soon.

THE Noel Box Co. has been organized at Middlesborough, Ky., with a capital of \$35,000. The Middlesborough Box Factory and the casket factory have been purchased, and the latter will be entirely remodeled and equipped with new machinery.

H. T. Noel, of Lancaster, has been selected president, and Henry Nicoll, manager.

AN extension of the Gadsden & Atlanta Railroad is being constructed at Gadsden, Ala., in order to accommodate the mills of the Kyle Lumber Co.

THE Columbia (S. C.) Cotton Mill Co. has awarded contract for several million feet of lumber to be used for its mill buildings. D. W. Alderman, of Alcoln, S. C., secured the order.

MESSRS. J. Y. PETTYS & SONS, of Longwood, Fla., have determined to erect a mill for cutting hardwood, and will also build a tramroad.

MR. R. NEPTUNE, of Vincennes, Ind., has purchased site for a barrel factory which he intends building at Memphis, Tenn. Allen & Finley made the sale. The price paid was \$7000.

MESSRS. LOUIS RICORD, of Pennsylvania, and H. C. Bradley, of Cincinnati, Ohio, have purchased 60,000,000 feet of timber in Morgan and Cumberland counties, Tenn.,

along the Emory and Obed rivers and their tributaries, where it can be floated, making a distance of about thirty-six miles from Harriman in all directions. At Webster E. M. Wood has donated five acres of land, and the H. C. & I. R. R. Co. will run a switch from the station to the steamboat landing. Robertson creek will be dammed and a large piece of land converted into a basin for storing logs. A large steam saw mill will be built, and there will also be several wood factories erected.

THE Spengler Manufacturing Co., of Vicksburg, Miss., has definitely decided to rebuild its sash factory that was recently destroyed by fire, and will at once commence building.

THE Ybor City (Fla.) Novelty Works continue to use large quantities of lumber, having just received over 200,000 feet of well-seasoned yellow pine.

THE steamship Algonquin included in its freight last week 231,046 feet of lumber, 9682 cross-ties and 2000 bundles of shingles. This boat plies between Jacksonville, Fla., and New York city.

**LUMBER MARKET REVIEWS.****Baltimore.**

OFFICE MANUFACTURERS' RECORD, BALTIMORE, May 4.

The movement in lumber during the past week has been fairly active with a good general demand. Receipts continue light and stocks of air-dried lumber on the market are fully ample for the demand. North Carolina yellow pine continues firm, with the movement fair and stocks light. There is an increased demand for export, and as the month of April shows the shipments to be over 3,000,000 feet, there is every prospect of a large foreign demand for North Carolina pine during the current year. Air-dried lumber is steady with a full supply. Cypress is dull and easy with a light inquiry, except for choice grades. In hardwoods the volume of business is improving, and for all fancy woods for finishing interiors and for furniture there is a fair inquiry with prices firm. Shingles are steady with stocks ample for the current demand and prices steady. There is a good business reported at all the planing mills and orders are more numerous, but prices are not improving. Box factories are all running up to their full capacity, and business is generally of a remunerative character. The total exports for the month of April to foreign countries from this port were 3,056,000 feet of lumber, 5420 logs of timber and 217,000 staves.

The following list represents the prices current at this date:

| VIRGINIA AND NORTH CAROLINA PINE.  |               |
|--|---------------|
| 5-4x10 No. 2, kiln dried.....  | \$16 25@      |
| 5-4x12 No. 2, " ".....   | 17 75@        |
| 4-4x10 No. 1, " ".....   | 19 75@        |
| 4-4x12 No. 1, " ".....   | 20 75@        |
| 4-4 narrow edge, No. 1, kiln dried.....  | 17 25@        |
| 4-4 wide edge, " ".....  | 21 75@        |
| 6-4x8, 10 and 12, " ".....   | 23 25@        |
| 4-4 No. 1 edge flooring, air dried.....  | 16 00@        |
| 4-4 No. 2 edge flooring, " ".....  | 12 50@ 13 00  |
| 4-4 No. 1 12-inch stock, " ".....  | 17 00@ 17 50  |
| 4-4 No. 2 " ".....   | 12 50@ 13 50  |
| 4-4 edge box or rough wide " ".....  | 9 00@ 10 00   |
| 4-4 " " (ordin'ly widths).....   | 8 50@ 9 50    |
| 4-4 " " (narrow).....  | 8 00@ 9 00    |
| 4-4x12 " ".....  | 10 50@ 11 50  |
| 3/4 narrow edge.....   | 6 00@ 7 00    |
| 3/4 all widths.....  | 8 00@ 8 50    |
| 3/4 10x16 wide.....  | 8 50@ 9 50    |
| Small joists, 3 1/2-12, 14 and 16 long.....  | 8 00@ 9 50    |
| Large joists, 3-16 long and up.....  | 9 50@ 11 00   |
| Scantling, 2x3-16 and up.....  | 9 50@ 11 50   |
| WHITE PINE.  |               |
| 1st and 2d clear, 4-4, 5-4, 6-4 and 8-4.....   | 48 50@ 51 50  |
| 3d clear, 4-4, 5-4, 6-4 and 8-4.....   | 43 00@ 44 00  |
| Good edge culls.....   | 14 50@ 15 50  |
| Good stock.....  | 17 00@ 17 50  |
| CYPRESS.   |               |
| 4-4x6, No. 1.....  | 20 00@ 21 00  |
| 4-4x6, No. 2.....  | 14 50@ 15 50  |
| 4-4x6, 16 feet, fencing.....   | 23 00@ 24 00  |
| 4-4x6, rough.....  | 9 00@ 10 00   |
| 4-4 rough edge.....  | 9 00@ 9 50    |
| 4-4 edge, No. 1.....   | 18 00@ 20 00  |
| 4-4 " No. 2.....   | 13 00@ 14 00  |
| HARDWOODS.   |               |
| Walnut.  |               |
| 5/8 Nos. 1 and 2.....  | 75 00@100 00  |
| 4-4 Nos. 1 and 2.....  | 90 00@100 00  |
| 5-4, 6-4 and 8-4.....  | 95 00@110 00  |
| Nos. 2 1/2, 3 and 4.....   | 125 00@130 00 |
| Newell stuff, clear of heart.....  | 125 00@130 00 |
| Culls.....   | 30 00@ 35 00  |
| Oak.   |               |
| Cabinet, white and red, plain sawed and good 1 and 2, 8 in. and up, 12 to 16 feet long, 4-4..... | 35 00@ 40 00  |
| 5-4 to 8-4.....  | 35 00@ 40 00  |
| Quartered white, 1 and 2 quality, all figured, 6 in. and up wide, 4-4.....                       | 50 00@ 53 00  |
| Culls.....   | 10 00@ 15 00  |
| Poplar.  |               |
| Nos. 1 and 2, 5/8.....   | 22 00@ 24 00  |
| 4-4.....   | 27 50@ 30 50  |
| Nos. 5, 6 and 8.....   | 30 00@ 32 50  |
| In yellow pine cargoes, log run stock.....   | 12 00@ 16 00  |
| Culls.....   | 12 00@ 14 00  |
| SHINGLES.  |               |
| Cypress, No. 1 hearts, sawed, 6x20.....  | 7 50@ 7 75    |
| No. 1 saps, sawed, 6x20.....   | 5 50@ 6 00    |
| No. 1 hearts, shaved, 6x20.....  | 6 50@ 7 00    |
| No. 1 saps, shaved, 6x20.....  | 5 00@ 5 25    |
| LATHS.   |               |
| White pine.....  | 2 70@ 2 75    |
| Spruce.....  | 2 35@ 2 40    |
| Cypress.....   | 2 15@ 2 20    |

**Norfolk.**

[From our own Correspondent.]

NORFOLK, VA., May 2.

In all branches of the lumber and timber industry of this port the greatest activity prevails, and the movement during the past week has been of greater volume than usual. The mills at this point and at all the milling sections in the interior of the State have abundance of orders and are running to their full capacity. There is an urgent demand for all kinds of lumber and stocks are not sufficient, while the assortment of grades is considerably broken. This is especially the case in kiln-dried North Carolina pine, for which the demand

is increasing and stocks totally inadequate to fill the orders on file. Prices hold firm with a hardening tendency, and association figures are strictly adhered to in all cases, while the prospects are that an advance will likely occur at an early date. Receipts of air-dried lumber are better, and all arrivals meet with ready sale at outside figures. Box lumber is also in good demand and prices for all grades firm. The shipments of lumber for the past week have been very large, and judging from the number of vessels in port and to arrive, the business for the month of May will show an increased volume. The planing mills, sash and blind factories are all busily engaged and report a fairly active business at good prices.

Kiln-dried North Carolina pine lumber f. o. b. vessel at this port is quoted as follows:

|                                    |             |
|------------------------------------|-------------|
| 5-4 rift No. 1.....                | \$27 50@    |
| 5-4 rift No. 2.....                | 16 00@      |
| 5-4x10 No. 1.....                  | 20 00@      |
| 5-4x12 No. 1.....                  | 20 50@      |
| 5-4x10 No. 2.....                  | 15 00@      |
| 5-4x12 No. 2.....                  | 16 00@      |
| 5-4 edge No. 1.....                | 17 50@      |
| 5-4 edge No. 2.....                | 13 50@      |
| 4-4 rift No. 1.....                | 25 00@      |
| 4-4 rift No. 2.....                | 15 00@      |
| 4-4x10 No. 1.....                  | 18 50@      |
| 4-4x12 No. 1.....                  | 19 50@      |
| 4-4x10 No. 2.....                  | 15 00@      |
| 4-4x12 No. 2.....                  | 15 00@      |
| 4-4 edge No. 3.....                | 9 50@       |
| 5-4 edge No. 3.....                | 10 50@      |
| 4-4x8, 10 and 12 culls or box..... | 9 00@ 10 50 |
| 4-4x5-4 edge, cull or box.....     | 8 50@       |

In carload lots \$1.00 additional per thousand on Nos. 1 and 2, and fifty cents additional per thousand on No. 3 and box.

**Charleston.**

[From our own Correspondent.]

CHARLESTON, S. C., May 2.

There is a fair trade in progress throughout all departments of the lumber industry of this port, and the demand from Northern ports is active, with values very firm for all grades of desirable lumber. The inquiry from the West Indies and South America is improving, while there is very little inquiry from Europe. Freight on yellow-pine lumber have advanced here, as well as at other Southern points, and vessels are scarce. The shipments for the past week include 646,960 feet of lumber to New York, 217,000 feet to Philadelphia and 80,000 feet of lumber and 35,000 shingles to Port Antonio. In the list of values the market closes with a firmer tone, and with the prospect of an increased demand an advance is expected. Merchantable lumber is quoted \$14.00 to \$16.00 for city sawed and \$12.00 to \$14.00 for railroad; square and round timber \$9.00 to \$13.00 for railroad and \$8.00 to \$11.00 for raft; dock timber \$4.50 to \$6.50; shipping \$8.50 to \$10.50. Shingles are steady, with a fair demand at \$5.00 to \$7.00 per thousand.

EXPORTS OF LUMBER FROM CHARLESTON FROM SEPTEMBER 1, 1892, TO APRIL 28, 1893.

| Exported to                    | 1892-'93. Feet. | 1891-'92. Feet. |
|--------------------------------|-----------------|-----------------|
| New York.....                  | 27,493,031      | 20,963,948      |
| Boston.....                    | 918,000         | .....           |
| Philadelphia.....              | 2,955,292       | 4,974,000       |
| Baltimore.....                 | 840,000         | 1,513,978       |
| Other United States ports..... | 1,009,000       | 1,886,009       |
| Total coastwise.....           | 33,125,323      | 29,337,935      |
| Great Britain.....             | .....           | .....           |
| Palermo.....                   | .....           | .....           |
| France.....                    | .....           | .....           |
| West Indies.....               | 1,760,360       | 1,962,300       |
| South America.....             | .....           | 177,000         |
| Nova Scotia.....               | .....           | .....           |
| Other foreign ports.....       | .....           | 578,174         |
| Total foreign.....             | 1,760,360       | 2,717,474       |
| Grand total.....               | 34,885,683      | 32,055,409      |

**Atlanta.**

[From our own Correspondent.]

ATLANTA, GA., May 2.

As a lumber centre this city is becoming of greater importance each year, and the movement in lumber and timber is of considerable volume. Every information in regard to the lumber industry of Georgia is thoroughly discussed in this market, and resident here are some of the leading lumber operators in this State. The condition of the market at the moment shows a great improvement in the volume of business for the month of April, and mills both here and at adjacent points in the saw-mill sec-



tion have all the orders they can handle for some time to come. The business in dressed lumber is in first-class shape, but stocks are light, with everything desirable sold some weeks in advance. Values for all desirable grades of lumber continue firm and without material change. Heart rift flooring is quoted \$25.50 to \$26.00, clear sap rift \$21.00 to \$22.00, clear flat sawed \$14.00, star flat sawed \$12.00 and common \$10.00. Rough lumber has taken an upward turn on account of the active demand for car material, orders having been filed during the past month for more than 5000 cars. There is a good demand for North Carolina pine, and trade is reported better than usual, with good prices for finished lumber. The planing mills and sash, door and blind factories are all busy and working up to their greatest capacity. The Atlanta Lumber Co. has been adding some sash and door machinery, having on hand some large orders from Chicago. The A. B. Steele Lumber Co. is pushing its new kiln plant towards completion.

#### Savannah.

[From our own Correspondent.]

SAVANNAH, GA., May 2.

The condition of the lumber industry is showing a marked improvement both at this port and throughout the State. There is an active inquiry for yellow pine, and the mills adjacent to this city are all supplied with orders for thirty and sixty days to come. Dressed lumber is quite active with a good demand for desirable grades; stocks are very light, and the mills are all well sold up. Heart rift flooring is quoted at \$25.00 to \$26.00, clear sap rift \$20.00 to \$21.00, clear flat sawed \$14.00, star flat sawed \$12.00 and common \$9.00 to \$10.00. Throughout the State there is still some complaint among millmen in regard to car shortage, but the railroads are making efforts to furnish all necessary cars. The exports of lumber from this port for the past week were as follows: New York 1,070,819 feet, Baltimore 298,580 feet, Boston 360,000 feet, Portland, Me., 392,989 feet and foreign 154,127 feet—total 2,276,515 feet. In lumber freights vessels for coastwise trade are in good demand, and the market is firm at ruling rates. The rates from this and nearby Georgia ports are quoted at \$4.62½ to \$5.50 for a range including Baltimore and Portland, Me. To the West Indies and Windward rates are nominal, to Rosario \$14.00 to \$15.00, to Buenos Ayres or Montevideo \$12.50, to Rio Janeiro \$13.50 and to Spanish and Mediterranean ports \$11.00 to \$11.50. Steamer rates to New York and Philadelphia are quoted at \$7.00, to Boston \$8.00 and to Baltimore \$5.50.

#### Mobile.

[From our own Correspondent.]

MOBILE, ALA., May 2.

The timber trade has not been as active during the past week as usual, and European advices give no encouragement of better prices, while stocks in the United Kingdom are more than ample for the demand. This has had a depressing effect on our market, and prices for sawn timber have dropped to an 11 to 12-cent basis, and market dull at these figures. Hewn timber is also very quiet, and is quoted at ten to eleven and a-half cents, with no prospect of an early improvement. Cypress is scarce, and, with an active demand, prices have advanced to thirteen to fifteen cents per cubic foot, according to quality. The greatest activity, however, is in lumber, and there is a good home and export demand, with logs at \$5.00 to \$7.00, according to size and quality. There is a good demand from Northern ports, and also from Mexico, the United Kingdom and Cuba. The shipments of timber reported during the past week were 2,655,028 feet, and since September 1, 1892, they aggregate 55,256,784 feet, against 41,230,049 feet for the

corresponding period last year. The shipments of hewn timber for the week were only 56,104 cubic feet, and since September 1, 1892, they aggregate 1,873,546 cubic feet, against 1,436,796 cubic feet last year. Of sawn timber the exports were 178,576 cubic feet, and since September 1, 1892, they amount to 1,880,531, against 1,463,807 cubic feet last year. There is no demand for oak, and values are easy at fourteen to eighteen cents. Red cedar is in good demand at thirty-five cents per cubic foot, with stocks very light. In local circles there is a good building demand, and for all desirable material prices are firm. Stocks of shingles are very much reduced, and shingle men are waiting for another freshet. The mills throughout the saw-mill section of the southern part of the State are all actively engaged and working up to their full capacity. The Peters Lumber Co.'s mills at Alco, Ala., cut during the first three months of the present year more than 8,000,000 feet of lumber.

#### Pensacola.

[From our own Correspondent.]

PENSACOLA, FLA., May 2.

The tone of the market for lumber during the past week has been somewhat depressed, and values have ruled weak with a declining tendency throughout. Sawn timber showed considerable weakness and fell off in price, touching ten cents at the close of the market on Saturday. The cause of this decline in prices is difficult to explain; some attribute it to a light demand and present heavy stocks, while receipts continue to increase. There has been a very good trade in lumber and the demand is very decided, both from foreign and coastwise ports. The South American trade is good, and during the week about 1,500,000 feet have been shipped to that country. There is a fair inquiry from the United Kingdom and Continent, and prices are very steady with a hardening tendency. From domestic ports the demand is brisk, and the mills adjacent to this city have as many orders as they can fill. The total shipments during the week were 4,841,000 feet of lumber and 2,168,960 feet of sawn and hewn timber.

#### Beaumont.

BEAUMONT, TEXAS, May 1.

The condition of the general lumber market at present both here and throughout the milling sections of the State are better now than for several years past. The outlook is said to be very encouraging, and the demand is active, with prices firm and hardening. There is a good supply of logs, and nearly all the mills both here and at other points are fully employed. The *Beaumont Journal*, in its weekly review of the market, says: "The favorable conditions prevailing during the past six months have improved within the last two weeks, and there is now a better demand and a brighter outlook than for several years. Recent rains throughout a considerable portion of the State have had much to do with the improvement, giving assurance as it does of a favorable growing season and encouraging farmers in making betterments." There is a good demand for dressed stock, and shipments are going forward with more freedom. Special bills are plenty, and mills are generally well supplied with orders. The Reliance Lumber Co. is about starting up, and about thirty cars of logs have arrived, which will give the company a good showing and chance to commence operations. The assets of the Warren Lumber Co. and the Tyler County Lumber Co. will be sold at public sale and an opportunity offered for some enterprising men to take hold of these valuable properties. The situation at Orange is considered very satisfactory, and the saw mills and shingle mills are all running on full time, and shipments of lum-

ber are made as fast as it can be loaded. Orders are reported very plentiful, and prices for all desirable stuff are firm and tending higher. The Galveston Jetty Construction Co. placed orders with the Litcher & Moore Lumber Co. for fifteen carloads of railroad ties and stringers to be shipped to Bolivar Point for use in track to be put down there for distribution of material on the north wall of the Galveston jetty system. Barge-building at Orange is becoming quite a feature, and one was launched last week with capacity for carrying 300,000 feet of lumber, while others are now building of greater capacity. The activity in lumber matters is very perceptible at Lake Charles and Westlake, La., where the mills are all rushing the industry. The yellow-pine company at Colmesneil, Texas, has about 2,000,000 feet of timber cut, and has commenced shipping via the Sabine & East Texas road to Beaumont, where it will be converted into lumber by one of the large mills.

#### Iron Market Review.

There has been no new features in the iron trade during the past week. All interest has been centred in the financial question, although as yet there is little complaint of tight money. In the East the general tendency seems to be to purchase in small lots, though in Philadelphia there have been a number of very fair-sized sales of Southern brands made.

In Chicago, owing to continued labor difficulties, there has been a little falling off in the business, but what sales have been made were without any shading in price. Southern No. 1 foundry and No. 1 soft are quoted, cash f. o. b. Chicago, \$13.00 to \$13.25; No. 2 foundry, \$12.50.

In Louisville there has been a slight depression, leading to concessions in sales. Prices quoted are, cash f. o. b. Louisville: No. 1 foundry, \$12.90 to \$13.10; No. 2 foundry, \$12.00 to \$12.25.

St. Louis reports a number of large sales, but otherwise little or nothing new in the market. Prices quoted remain, cash f. o. b. St. Louis: No. 1 foundry, \$13.50 to \$13.75; No. 2 foundry, \$12.25 to \$12.50; gray forge, \$11.20 to \$11.40.

In Cincinnati there has been a good volume of business and many fair-sized orders throughout the week. Prices remain as last week, few concessions being offered, cash f. o. b. Cincinnati: No. 1 foundry, \$13.00 to \$13.40; No. 2 foundry, \$11.50 to \$12.00.

#### Southern Iron Notes.

LAUDERDALE BROS. have found a seven-foot vein of Bessemer iron ore near Llano, Texas, and will shortly institute developments.

THE formal consolidation of the Etna and Standard Iron Companies of Wheeling, W. Va., was completed on the 27th ult. The stockholders met at the Exchange Bank in Wheeling and elected a board of directors for the new company. The directors chosen comprised the former boards of the two old companies, and are Messrs. W. H. Topping, W. B. Simpson, Joseph Bell, W. B. Caldwell, John A. Topping, L. Spence, L. S. Deleplain, Alonzo Loring, J. R. Mitchell, A. P. Tallman, William Mann, J. J. Holloway and W. T. Graham. The board organized by electing as president Mr. W. T. Graham, formerly president of the Standard; secretary, John A. Topping, formerly secretary of the Etna; treasurer, J. J. Holloway, formerly secretary of the Standard, and general manager, B. M. Caldwell, formerly general manager of the Etna. The two companies have been practically running as one, however, since the consent of the stockholders to the consolidation project was obtained. The transfer of the properties from the old company to the new one still remains to be done.

#### What United Effort Can Do.

The folder map issued by the Alexandria Investment Co., Alexandria, Ind., shows in a striking manner the rapid development which that section is undergoing. It is an illustration of what can be done when business men determine to make known the advantages and resources of any particular locality, and it ought to be studied by everyone interested in the progress of any town or city. Most people are entirely too prone to sit down and expect natural advantages to draw manufacturers to their city, instead of making a united effort to attract them by such persistent work as will command the attention of the entire country. St. Louis, Chicago and other cities of vim and push never lose a chance to advertise themselves, as illustrated a day or two ago, when a committee of five citizens went to Philadelphia from St. Louis to ask that one of the International Navigation Co.'s steamers now being built by the Cramps be named "St. Louis." Such a suggestion, if made in many places, of sending five leading business men to ask a similar favor simply and wholly to advertise a city would be received with ridicule, and yet it is just such work as this that builds up great cities. Natural advantages must be supplemented by united energy and enterprise if anything big is to be accomplished. This town of Alexandria, which is flooding the country with its literature, has had natural gas for a long time, and for a year or two a number of factories there have been using it as fuel, but no persistent work was done to make this known until six or seven months ago, and hence its great advantage in having natural gas did not build it up. But some six or seven months ago a number of leading bankers and others in Louisville, Chicago and elsewhere and some Standard Oil people resolved to make Alexandria the most conspicuous town in all the Indiana gas region. In that time enough manufacturing enterprises to employ nearly 9000 mechanics have been secured at Alexandria, including the oldest and largest plate-glass works in America now being moved there, a great iron and steel-making concern which will employ 2500 hands, and fifteen or twenty other concerns. This has all been done simply by hard work, united effort and push and a determination not to wait for "natural advantages" to make things "turn up," but to go ahead and turn them up themselves. This is the spirit that is needed wherever actual results are to be accomplished and where towns and cities are to be built up. The South has "natural resources" without limit, furnishing a foundation for the most solid industrial development, for great immigration work, for the broadening and building up of all its business interests, but "natural resources" will not count unless there is a united effort on the part of its people. It was just such united work as Alexandria illustrates that made Atlanta the most prosperous and progressive city of the South for many years, and which still keeps it to the front as one of the most enterprising cities in the country. What Alexandria is doing the whole South can do.

THE Mexican government has let the contract for the construction of an extensive iron wharf at the port of San Benito, the wharf to be 420 metres long; work must begin within twelve months and be completed within three years. The cost of the wharf will be paid by 2 per cent. of the duties collected at the port of Soconusta and by the products of the duty of five cents per ton on the registered tonnage of every vessel touching at the port.

THE work on the iron mountain Cerro del Mercado at Durango is being pushed energetically, as a good market is opening for iron. It is stated that at least three new foundries will be established shortly.

# CONSTRUCTION DEPARTMENT.

**WE PUBLISH**, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.

\* Means machinery is wanted, particulars of which will be found in "Machinery Wanted" columns.

✉ In correspondence relating to matters reported in this paper, it will be a favor if it is stated that the information was gained from the MANUFACTURERS' RECORD.

## ALABAMA.

Coal Valley—Coal Tipple, etc.—The Virginia & Alabama Coal Co. will erect a coal tipple and put in new mining plant.

Bridgeport—Ice Factory.—E. Brown and J. R. Gresham, of Huntsville, and F. S. Chester, of Bridgeport, have leased the Bridgeport ice plant.

Markton—Saw Mill.—J. M. Griffin and J. B. Rutherford are erecting a saw mill.

Whistler—Canning Factory.—J. W. Ellison intends to start a canning factory.\*

## ARKANSAS.

Clarksburg—Mining.—The Pennington Mining Co. has been incorporated with a capital stock of \$75,000.

Cotton Belt—Saw Mill.—William Carlisle & Co. are building a new saw mill near Cotton Belt.

Dalark—Mercantile.—The Farmers' Store has been chartered with S. Lanton, president; H. A. Green, vice-president, and H. B. Delamar, secretary and treasurer. The capital stock is \$10,000.

Harrison—Flour Mill.—Miller & Bazole are building a roller-process flour mill.

Kingsland—Lumber Mills.—The Saline Lumber Co. has been chartered with the following officers: D. E. O'Leary, president; George H. Davis, secretary, and W. H. Fisher, treasurer. The capital stock is placed at \$10,000.

Little Rock—Woodworking Factory.—The Arkansas Wood Manufacturing Co. has been incorporated with a capital stock of \$50,000 and will erect a large mill. William Farrel is president; S. M. Apperson, vice-president, and Oscar Davis, treasurer.

New Lewisville—Lumber Mills.—The Interstate Lumber Co. has been chartered with the following incorporators: Henry Moore, of Texarkana (president); Edward Alexander, Sr., Charles R. Alexander, John J. Prince and W. B. Smith. The capital stock is \$50,000.

Sedgwick—Shingle Mill.—E. W. Culver is having plans drawn for a shingle mill.

Yellville—Marble Quarry.—The Marble Cave Mining Co. is opening a quarry near Yellville.

## GEORGIA.

Allapaha—Saw Mill.—J. D. Weston will rebuild his saw mill reported in this issue as burned.

Ellijay—Saw Mill.—Searcy, Whitney & Godfrey will rebuild their saw mill reported in this issue as burned.

Emerson—Ochre Mill.—Lang & Park are putting in an ochre mill.

Macon—Hat Factory.—Samuel Mayer, W. B. Watts, E. Ulman, Wm. Gordon, M. Happ and Solomon Waxelbaum have incorporated the Macon Hat Co. to manufacture hats and caps of all kinds. The capital stock is placed at \$15,000.

Savannah—Factory.—J. S. Elsing and J. S. Tyson have formed the Georgia Coal Kindling Co. to manufacture a fire-kindler which they have patented.

Westonville—Saw Mill.—S. R. Weston will rebuild his saw mill reported in this issue as burned.

## KENTUCKY.

Covington—Vehicle-material Factory.—E. B. Smith, I. N. Emerson and R. B. Parson have incorporated the Victor Manufacturing Co. for the purpose of dealing in and manufacturing vehicle material. Its capital stock is \$30,000.\*

Covington—Ice Factory.—The Consumers' Ice Co. is putting in another ice machine to double

the capacity of its plant, making it sixty tons daily.

Glasgow—Ice Factory.—Conway, Hogan & Co. will build an ice factory.\*

Louisville—Lumber Mills.—F. E. Proctor, I. M. McKnight and H. C. Shreve have incorporated the Mountain Lumber Co. to operate mills for cutting lumber, staves, etc. The capital is placed at \$5,000.

Newport—Compress Works.—The Campbell Manufacturing Co. has been incorporated with a capital stock of \$15,000 to manufacture, sell and operate cotton compresses. Edward W. Mullikin, Jesse R. Clark and Will E. Campbell form the company.

## LOUISIANA.

Crowley—Lumber Mill.—The Crowley Lumber & Building Co., reported last week as organized, will operate lumber mills.

Donaldsonville—Electric-light Plant.—The Donaldsonville Ice Factory Co. has decided to put in the electric-light plant mentioned last week as contemplated.

New Orleans—Cotton Mill.—The Semmes-Parker Manufacturing Co. has been organized to erect a cotton mill, with a capital stock of \$100,000. T. J. Semmes is president; William Parker, managing director, and T. J. Semmes, Jr., secretary and treasurer.

New Orleans—Ice Factory.—The New Orleans Ice Co. has been incorporated to manufacture ice. The capital stock is \$130,000.

New Orleans—The Robinson Mineral Springs Co. has been chartered with a capital stock of \$100,000.

Opelousas—Ice Factory.—T. S. Isaacs will erect an ice factory. A site for it has been bought.

## MARYLAND.

Baltimore—Perfumery Company.—Anna P. Reid, Charles Mitchell, Jas. K. P. Austin, Edwin F. Bassett and Howard Bryant have incorporated the National Perfumery Co.

Baltimore—Lumber Mills, etc.—Walter Scott, Edward Reynolds, Benjamin F. Taylor, G. W. Sattler and Jno. E. Clark have incorporated the Building Material Co. to manufacture lumber and building material generally. The capital stock is \$10,000.

Baltimore—Paper Mill.—Geo. F. Jones & Co. will put in new machinery to replace some that was damaged by fire.

Baltimore—Brush Factory.—Charles W. Lord & Co. will rebuild their brush factory reported in this issue as burned.

Crisfield—Steamboat Company.—The Crisfield & Island Steamboat Co. has been incorporated with a cash capital of \$2500. Job A. Evans, of Smith's Island, is president; John A. Chambers, of Tangier Island, vice-president, and Benjamin F. Marsh, of Ewell, general manager and treasurer.

## MISSISSIPPI.

Greenville—Hardware Company.—W. F. Riggs, H. E. Wetherbee, Hinds Holmes, D. Wetherbee and C. Gillespie have incorporated the Wetherbee Hardware Co. to buy and sell machinery, etc. The capital stock is \$15,000.

Pine Grove—Brick Works.—C. W. Robinson, of Meridian, will establish brick works at Pine Grove, to employ 100 hands.

Summit—Ice Factory.—H. E. Walker, of Minnesota, may build an ice factory in Summit.

## NORTH CAROLINA.

Charlotte—Cotton Mill.—Philip Schiff contemplates erecting a cotton mill.

China Grove—Cotton Mill.—A \$42,000 company will organize for the purpose of erecting a cotton mill.

Concord—Cotton Mill.—The Patterson Manufacturing Co. has been organized to erect a cotton mill. J. W. Cannon is president, and J. Frank Patterson, secretary-treasurer.

Cool Spring—Cotton Gin.—Thomas Bros. will rebuild their cotton gin reported in this issue as burned.

Durham—Flour Mill.—J. B. Warren, W. F. O'Brien and T. J. Walker will build a roller-process flour mill of twenty barrels capacity daily.

Fayetteville—Ice Factory.—J. S. Barnes, of Greensboro, will erect an ice factory in Fayetteville.

Madison—Tobacco Factory.—Penn Bros. Co. has started a tobacco factory.

Newton—Cotton Mill.—Yount & Shrum, J. R. Gaither and Solomon Shrum will erect a cotton mill.

New Berne—Barrel Factory.—B. B. Neal, T. W. Dewey and Thomas Daniels have incorporated the East Carolina Barrel Factory with a capital of \$3500.

River Side—Cold-storage Plant.—R. L. C. Cochran will build a cold-storage plant.

Sanford—Stone Quarries.—Wm. H. Smith, of Niagara Falls, S. Ont.; Jno. D. Williams, of Saginaw, Mich.; R. H. Maxwell, of Cleveland, Ohio, and Geo. A. McArthur, of Cleveland, have chartered the Sanford Stone Co. with a capital stock of \$60,000. They will probably soon open quarries.

Southern Pines.—The Niagara Grape & Fruit Co. has been chartered to cultivate and can fruits, etc. The capital stock is \$50,000.

Taylorsville—Cotton Mill.—J. F. Moore will put new machinery in his cotton mill.

Wilson—Cotton Mill.—The Wilson Cotton Mills are being enlarged and new machinery is being added.

Winston—Ice Factory.—D. H. Browder & Co. have arranged for the erection of an ice factory of ten tons capacity daily.

## SOUTH CAROLINA.

Edgefield—Planing and Woodworking Mill.—G. D. Mims is enlarging his planing mill and woodworking plant and will put in new machinery, all at a cost of about \$10,000.\*

Georgetown—Increase Capital.—The Palmetto Cypress Co. will increase its capital stock to \$10,000.

Johnston—Cotton Mill.—Commission to organize has been granted to the Johnston City Cotton Mill for the purpose of manufacturing cotton goods. J. D. Eidson, B. F. Lumis, J. H. Edwards, S. L. Ready, P. L. Wright and others are the incorporators; capital stock \$50,000.

Seneca—Brick Works.—The Courtenay Manufacturing Co. will establish brick works.

Sumter—Cotton Factory.—Abe Ryttenburg, W. M. Graham, E. E. Rembert, A. S. Brown, Altamont Moses and others have obtained commission for the Sumter Cotton Manufacturing Co. with a capital stock of \$200,000.

## TENNESSEE.

Bearden—Canning Factory.—L. J. Brooks will start a canning factory.

Knoxville—Marble Mill.—It is said that Redfield Proctor will erect at Knoxville a marble mill of fifty gang saws.

Webster—Saw Mill.—Louis Ricard, of Pennsylvania, and H. C. Bradley, of Cincinnati, Ohio, will build a saw mill at Webster.

Union City—Decoy-duck Factory.—Curlin & Beck will enlarge their decoy-duck factory.

White Bluff—Heading and Stave Mill.—Joseph Whited & Co. have erected a stave and heading mill.

## TEXAS.

Corpus Christi—Telephone Line.—A stock company is now being formed to construct a telephone line from Corpus Christi to Alice.

Corrigan—Dry-kiln.—C. Bender & Son will rebuild their dry-kiln reported in this issue as burned.

Eddy—Well Drilling.—F. B. Kincannon, C. F. Dumars, M. E. Norris, J. M. Bedoehreck and C. M. Curry have incorporated the Eddy Artesian Well Co. with a capital stock of \$20,000.

Fort Worth.—W. A. Garner, D. A. Garner and F. S. Boulware have incorporated the Fort Worth Daily Mail Co. with a capital stock of \$20,000.

Gainesville—Bottling Works.—H. B. Fletcher, F. S. Galigher, W. D. Terry, Jr., M. Chevelier, Adolphus Burch and Lewis Beantshun have incorporated the Apollo Bottling Co. to operate bottling works. The capital stock is \$10,000.

Georgetown—Cottonseed-oil Mill.—John Steele, R. Y. Young, D. H. Snyder, C. L. Cleveland, A. J. Nelson and Thomas Bruce have incorporated the Georgetown Cotton Oil Mill Co. for the purpose of erecting a cotton-oil mill with a capital stock of \$20,000. This is the company reported last week as organized.

Jacksonville—Canning Factory.—A company has been organized in Galveston with H. Kempner as president to operate the canning factory in Jacksonville. The capital stock is \$20,000. Fred E. Hann, general manager.

Kyle—Cottonseed-oil Mill.—The Kyle Oil Mill Co. is enlarging and improving its cottonseed-oil mill.

Llano—Iron Mine.—Lauderdale Bros. will open a new iron-ore mine.

Marble Falls—Electric-light Plant and Water Works.—An electric-light plant will be erected and a system of water works constructed. A. R. Johnson can inform.\*

Moscow—Saw Mill.—The Bender saw mill, reported in this issue as burned, will be rebuilt.

Orange—Ship-yards.—Valverde & Clooney have established ship-yards.

Paris—Sewerage System.—The construction of a sewerage system is talked of.

Port Lavaca—Brick and Tile Works.—O. S.

Haskell, of Ord, Neb., will start a brick and tile works in Port Lavaca.

Richmond—Cotton Gin.—J. H. P. Davis will erect a cotton gin.

Richmond—Cotton Gin.—T. W. Jones will erect a cotton gin at Thompson Switch.

Richmond—Cotton Gin.—Bassett & Winston will erect a cotton gin.

Tyler—Creamery.—Hardin Bros. have established a creamery.

Will's Point—Iron Bridge.—Contract has been let for the construction of an iron bridge 2100 feet long across Sabine river at "Deninit" crossing, between Van Zandt and Rains counties.

## VIRGINIA.

Alexandria—Fertilizer Mill.—The Alexandria Chemical & Fertilizing Co. will enlarge its mill.

Alexandria—Manufacturing.—The Rock Creek Sand & Mortar Co. has been incorporated to manufacture and deal in building material. The capital stock is \$25,000.

Bedford City—Saw Mill.—Mosby & Dunn have started a kindling wood mill.

Coeburn—Coal Mines.—The Swansen Coal Co. has been chartered to open coal mines with a capital stock of \$50,000.

Dendron—Lumber Mills.—The Surry Lumber Co. will rebuild its mills reported in this issue as burned.

Farmville—Water Works.—W. P. Dupuy and J. C. Rawn, of Roanoke, have obtained franchise to construct water works.

Norfolk—Knitting Mill.—A knitting mill will be started by a company now organizing. D. Lowenburg can probably inform.

Richmond—Electric-light Works, etc.—The Electric Construction Co. has been chartered to manufacture electric-light power, heat and machinery. The capital stock is \$25,000.

Richmond—Grain Elevator.—The Chesapeake & Ohio Railroad Co. has awarded contract for the erection of a grain elevator.

Richmond—Grocery Company.—The J. D. & R. S. Christian Co. has been chartered with a capital stock of \$40,000. Jno. D. Christian is president; Robert S. Christian, vice-president, and Alfred E. Wait, secretary and treasurer.

Richmond—The Richmond Steam Fitting & Plumbing Co. has been incorporated with a capital stock of \$10,000.

Roanoke—Mineral Wool Plant.—The Roanoke Mineral Wool Co. will rebuild its plant reported in this issue as burned.

Strasburg—Lime Works.—The Shenandoah Lime Co. has been chartered to manufacture lime and cement. The capital stock is \$25,000.

Waynesboro—Mining and Manufacturing.—The West Augusta Mining Co. has been incorporated for mining and manufacturing. The capital stock is \$10,000.

## WEST VIRGINIA.

Bluefield—Barrel Factory.—The Standard Oil Co. will erect a barrel factory.

Fayetteville—Printing Company.—The Journal Printing & Publishing Co. has been organized.

Kingwood—Brick Works.—O. R. Brand will establish brick works.

Kingwood—Harness Factory.—W. N. Orr will start the manufacture of harness.

Logan—Saw Mills.—H. S. White will build several saw mills in Logan county.

Martinsburg—Manufacturing Company.—Ira H. Gaither and Harry M. Gaither, of Cockeysville, Md.; W. H. Hinkle, A. P. Forsyth and Richard L. Cauthorn, of Hood's Mills, Md., have incorporated the Hinkle & Gaither Agricultural Manufacturing Co.

Newton—Saw Mill.—N. B. McCarthy will erect a saw mill.

Piedmont—Paper Mill.—The West Virginia Paper Co. has put in another paper machine, doubling its mill's capacity.

Piedmont—Water Works.—The city will build a water works system, an issuance of bonds having been voted for same on May 2.

Wheeling—Printing Works.—The Messrs. Stifel are putting in improved calico-printing machinery.

## BURNED.

Allapaha, Ga.—J. D. Weston's saw mill.

Baltimore, Md.—Chas. W. Lord & Co.'s brush factory.

Baltimore, Md.—Geo. F. Jones & Co.'s paper mill was damaged to the extent of \$5000.

Cool Spring, N. C.—Thomas Bros.' cotton gin.

Corrigan, Texas.—C. Bender & Son's dry-kiln.

Dendron, Va.—The Surry Lumber Co.'s lumber mills.

Ellijay, Ga.—Searcy, Whitney & Godfrey's mill.



Kittrell, N. C.—Davis Hotel at Kittrell burned April 29; loss estimated at \$50,000; insurance \$16,000. Hotel was a resort for Northern people.

Louisville, Ky.—The Louisville Steam & Electric Motor Power Co.'s electric power-house has been destroyed by fire; loss estimated, \$30,000.

Memphis, Tenn.—A barn belonging to the Citizens' Street Car Co. containing seventy old cars was burned April 26; loss \$50,000; insurance \$12,000.

Moscow, Texas.—Bender's saw mill.

Roanoke, Va.—The Roanoke Mineral Wool Co.'s plant.

Westonville, Ga.—S. R. Weston's saw mill.

## BUILDING NOTES.

Asheville, N. C.—School.—The Home Mission Board of the Presbyterian Church has bought a tract of land near Asheville and will erect a school for 250 students. The school is to be largely devoted to agriculture and mechanics.

Augusta, Ga.—Business Block.—Building for four stories to be erected on lot 60x185 feet. Address James U. Jackson.

Baltimore, Md.—Music Hall.—The board of directors of the Auditorium Company at Baltimore have let the contract for the new music hall to Henry Smith & Sons, of Baltimore. The total cost of the building is to be \$245,000, of which \$190,000 has been secured in stock subscriptions. An ornamental front designed for the structure will not be erected until the balance required, \$55,000, has been subscribed. Work on the music hall will begin at once.

Baltimore, Md.—George B. Spedden will build fourteen three-story brick dwellings. Rev. G. W. Devine is building a four-story school to be connected with St. John's Catholic Church.

Barton, Md.—School.—A school to cost \$10,499.45 is to be built.

Beeville, Texas.—Church.—Members of Episcopal church at Beeville are raising funds to build a new edifice. A lot has been purchased.

Carrollton, Ga.—W. J. Stewart will build three-story brick block for store and hotel. E. G. Kramer and L. C. Manderville will build brick block. J. A. Khudy is to build a brick store, also Joseph Harris.

Charleston, W. Va.—Church.—Congregation of M. E. Church South to build. Rev. H. P. Hamill will give details.

Clifton Forge, Va.—Y. M. C. A. Building.—Contract for a Y. M. C. A. building to cost \$15,000 or over has been awarded. J. P. Pettyjohn, of Lynchburg, Va., may be addressed about it.

Crisfield, Md.—Hall.—Odd Fellows raising funds for new hall.

Fayetteville, Texas.—Courthouse.—Building committee accepted plans for new courthouse to cost \$20,000.

Fernandina, Fla.—Chapel.—Catholic people of Fernandina intend building a chapel. Rev. Father Kilcoyne may be addressed.

Florence, S. C.—City Hall and Hotel.—Central Hotel at Florence is to be replaced by a three-story structure with 127 rooms and three stores on ground floor. City hall is to be replaced by a modern building.

Glenmora, La.—School.—School to be erected for the parish. Address Rev. S. Mallett.

Hartley, Texas.—Jail.—A. G. White, of Amarillo, Texas, is to build a stone jail to cost \$10,000 at Hartley.

Itasca, Texas.—Bank.—Citizens' National Bank to erect brick building for banking purposes; work to begin at once. Address R. P. Eldridge, president.

Kolb, Ala.—Masonic Building.—Citizens near Kolb Postoffice intend building a Masonic temple and schoolhouse.

Jackson, Md.—School.—A school building to cost \$10,685.60 will be built.

Jacksonville, Fla.—School.—Contract for building to cost \$17,000 awarded F. G. King, of Savannah; to be built of brick and terra-cotta, with Georgia marble trimmings.

Knoxville, Tenn.—Business Block.—W. C. Perry intends building a three-story brick block at Knoxville to cost \$600.

Lewisburg, W. Va.—Institute.—C. W. Rush & Co., Covington, Ky., have the contract to build a \$7600 addition to the Lewisburg (W. Va.) Female Institute.

Little Rock, Ark.—High School.—Plans prepared for \$10,000 structure. Address W. L. Dewoody.

Lynchburg, Va.—Church.—The contract for building an extension to the Centenary Methodist Church to cost \$12,000 has been let. W. B. Snead & Co., Lynchburg, may be addressed.

Lynchburg, Va.—Masonic Temple.—Masons of Lynchburg have decided to build a temple to cost \$40,000.

Lynchburg, Va.—Market-house.—Moorman Bros., of Lynchburg, will build a market and

warehouse with a hall in the upper story. Dimensions of building are 71x201 feet.

Manassas, Va.—County Buildings.—H. C. Jones, of Waynesboro, will construct the county courthouse, jail and clerk's office for \$15,000.

Mobile, Ala.—Power Station.—Mobile Street Railroad Co. will erect power-house and carsheds for electric equipment. McDonald Bros., architects, Louisville, Ky., may be addressed.

Mountain City, Tenn.—Courthouse.—A courthouse to cost \$25,000 is to be built at Mountain City. Address W. Chamberlain & Co., Knoxville.

Mount Savage, Md.—School.—A school building to cost \$11,500 will be erected.

Nashville, Tenn.—William C. Smith, architect, has planned one four-story and one five-story business block. Mrs. E. K. Vaulx is to rebuild a three-story building recently burned.

Oglethorpe, Ga.—Masonic Temple.—A two-story brick building for Masonic temple and hall is to be built.

Pendleton, S. C.—Hotel.—Miles M. Hunter, H. P. Litten and others organized company to build \$6000 hotel.

Pine Bluff, Ark.—A \$10,000 high school will be built.

Reidsville, N. C.—United States Building.—Brown & Carter, Wilmington, N. C., have the contract for a United States building at Reidsville to cost \$12,195.

Roanoke, Va.—Depot.—It is reported that work will soon be begun on a \$150,000 depot for the Norfolk & Western Railroad.

San Marcos, Texas.—College.—Baptists in that vicinity considering the erection of college. No plans adopted yet.

South Cumberland, Md.—School.—A \$11,200 school building will be erected.

Taylor, Texas.—Church.—Catholics at Taylor obtaining donations for edifice to cost \$20,000.

Union City, Ky.—Church.—Disciple congregation raising funds to erect an edifice.

Washington, D. C.—Improvements to cost \$25,000 will be made to the building and machinery of the Transparent Ice Co. Prof. Melville Bell is to have a \$30,000 buff-brick building erected at 35th and Q streets for a deaf and dumb institute; W. C. Morrison may be addressed. A three-story building 25x125 is to be built at 815 10th street for F. Freund; cost \$20,000. An addition to the Concord apartment house to contain nineteen suites of apartments is to be erected at a cost of \$40,000. The plans of Architect W. J. Palmer for a \$30,000 Masonic temple have been accepted. The contract has been let for the Hotel Florence at 18th and H streets; it will have 100 rooms; estimated cost \$10,000.

Wilmington, N. C.—Church.—Colored Baptists of Wilmington are raising funds to build a church of brick veneer.

Wytheville, Va.—Church and Stores.—Two three-story store and brick blocks for business are to be built at once. H. D. Wadley may be addressed. Baptist congregation is to erect a new church.

## RAILROAD CONSTRUCTION.

### Railroads.

Braxton, W. Va.—Work on the Holly River Lumber Co.'s proposed line into the West Virginia timber lands, terminating at Pickens, W. Va., it is understood, is to begin at once.

Carthage, N. C.—The Carthage Railroad extension to connect with the Carolina Central has been completed—a through line from Wilmington, N. C., to Chicago, it is expected, via Atlanta, Ga., and the Louisville & Nashville.

Conroe, Texas.—Work is being pushed on the International & Great Northern towards Trinity, Texas. Tracklaying has begun.

Fort Smith, Ark.—The Fort Smith, Paris & Dardanelle Railroad Co. has made an agreement with the city of Fort Smith to complete twenty-five miles of the line and have it in operation by January 1, 1894. The city gives the company right of way and site for a depot. Five miles of the road are built.

Hempstead, Texas.—A section of the Texas Central line in the Brazos valley, near Hempstead, is being raised and the track relaid.

Hodgenville, Ky.—It is reported that Colis P. Huntington is interested in having the proposed railway line from Hodgenville to Scottsville, Ky., built at once, and has instructed President Jacob Hubbard to make contracts at once for securing right of way. This is the project referred to in the MANUFACTURERS' RECORD of April 14.

Houston, Texas.—The Missouri, Kansas & Texas Railroad Co. is building a new bridge across the Brazos river at Houston.

Houston, Texas.—Surveys have been made for a road twelve miles long to extend from Sugarland, on the Southern Pacific, to Arcola, where a large sugar refinery is situated.

Marshall, Texas.—The Texas & Gulf Railroad Co. want bids for building thirty to sixty miles of road. C. D. Lancaster, Texarkana, Texas, is the secretary.

Mobile, Ala.—Work of grading the new line of the Mobile & Birmingham Railroad from Mobile Junction to Mobile has begun. The road is to be ready for traffic June 1.

Morristown, Tenn.—The Unaka & Nolachucky Railroad's proposed line is now being surveyed. J. L. Cain, vice president, may be addressed.

Newport, Ark.—It is reported that W. E. Winner will build a railway line from Buffalo Shoals to Yellville, Ark.

Savannah, Ga.—Grading of the Florida & Northern road near Savannah is nearly completed.

Sulphur Springs, Ark.—Contracts have been let for grading seventy-five miles of the Kansas City, Pittsburg & Gulf line south of Sulphur Springs. Frank Adams is general superintendent.

Titusville, Fla.—A spur is to be built from the Flagler railway system near Titusville to De Land, Fla. The road may be extended to connect with the Cotton Belt line at Monroe.

Upper Marlboro, Md.—The proposed Chesapeake Beach Railway, which has been surveyed through the lower counties of Maryland to Chesapeake bay, is to be built, it is reported, by a different company from the one which originated the project.

### Street Railways.

Alexandria, Va.—Surveys have been made for an electric line to belt the city, to be built by L. W. Spear. The road may be extended to Washington.

Americus, Ga.—Business men are trying to obtain control of the Americus electric line owned by the Thomson-Houston Company. It is not at present in operation.

Atlanta, Ga.—An extension of the Edgewood avenue electric line at Atlanta is nearly completed.

Atlanta, Ga.—The White Electric Railroad Co. will build a line five miles long from Atlanta to the United States barracks.

Baltimore, Md.—The elevated portion of the Lake Roland Electric Railway was tested for the first time May 2 by running a motor over it to the centre of the city. The Roland Park division of the line will be in operation to the down-town terminus in a few days.

Baltimore, Md.—Cars for the electric line of the Baltimore Traction Co. on Carey street will be equipped with Westinghouse motors. The line is expected to be in operation by May 15.

Baltimore, Md.—The City Passenger Railway Co. has asked the courts to restrain the city authorities from interfering with its erection of poles for an electric line in the city.

Baltimore, Md.—Prest. T. Edward Hambleton, of the Baltimore Traction Co., states that the extension of the electric line from Pikesville to Arlington, Md., will be completed by June 1. The extension will consist of seven miles of track.

Charleston, S. C.—The Great Western Manufacturing Co., of Chicago, mentioned in the last issue of the MANUFACTURERS' RECORD as securing control of the Enterprise Railway Co., of Charleston, will make several additions to the lines now in operation.

Columbus, Ga.—The North Highland Street Railroad Co. has petitioned city council for right of way over seven miles of streets. It intends constructing an electric-power station for street-car motors and for lighting the city.

Knoxville, Tenn.—The motive power of the West End Street Railway is to be changed to electricity. The change will cost \$15,000. J. E. Duncan, of Knoxville, has the contract.

Martin's Ferry, W. Va.—Workmen are laying track on the Bellaire, Bridgeport & Martin's Ferry electric road. It will be probably completed by September 1. The power-house is to be located at Bridgeport, W. Va. Jolly Bros. will give information.

Mobile, Ala.—Directors of the Mobile Street Railroad Co. have authorized Raphael Semmes, general manager, to make the necessary change for operating all its lines by electricity.

New Orleans, La.—The St. Charles street railway system in New Orleans, it is understood, is to be equipped with motors operated by ammonia gas as a motive power. It is claimed that they are lighter than electric motors, are not as dangerous, and that a plant for converting liquid ammonia into gas costs much less than an electric plant.

Richmond, Va.—The Richmond Railway & Electric Co. has purchased the River View line in that city and will place electric motors on it.

Waycross, Ga.—Two electric street railway projects are being agitated at Waycross by business men of the town.

THE use of mineral wool for the exclusion of heat in summer and cold in winter from houses is now being studied by architects and builders. The material resembles cotton, but is made from mineral matter and said to be incombustible. Forced into wall spaces it seals them up and makes them impervious to changes in temperature. The material only costs about \$20.00 per ton, and seems likely to come into general use in construction.

## MACHINERY WANTED

If you desire to purchase machinery of any kind consult our advertising columns, and if you cannot find just what you wish, send us particulars as to the kind of machinery needed. We will make your wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. You will thus get all information desired as to prices, etc.

Beltling.—W. J. Morgan, Stillmore, Ga., wants beltling.

Boiler.—The Bruceville Cotton Oil Co., Bruceville, Texas, may need a boiler.

Boiler.—R. H. Small, Troupe, Texas, will buy a locomotive boiler of about fifteen or twenty horse-power.

Boiler and Engine.—G. D. Mims, Edgefield, S. C., may want a thirty horse-power boiler and engine, second-hand.

Boilers and Engine.—The Palestine Cottonseed Oil Co., Palestine, Texas, will buy boilers and engines for cottonseed-oil mill.

Boiler-makers' Tools.—The Salem Iron Works, Salem, N. C., want to buy the following boiler-makers' tools: One set of power rolls for bending sheets as thick as one-half inch and eight feet wide, one set of hand rolls four inches diameter by four and one-half feet wide inside, power splitting shears to cut three-quarters of an inch thick, power punch to punch one-inch hole through three-quarter-inch steel and to reach to the centre of four-foot sheet, one fan for flange forge, one portable forge for rivet heating, lot of stay bolt taps seven-eighths and one inch in diameter, drill press to drill tube holes to centre of 60-inch circle, lot flange blocks, levelling plates, clamps, etc., also other tools necessary for boiler shop. Second-hand tools preferred if good, and at reasonable figures. Illustrated circulars and photos or sketches of tools must accompany prices at once.

Canning Factory.—J. W. Ellison, Whistler, Ala., wants outfit for canning factory.

Canning Factory.—R. H. Small, Troupe, Texas, will buy equipment for a small canning factory.

Cars.—The Houston Oil Refinery & Manufacturing Co., Houston, Texas, will want twenty-five tank cars for oil. Address J. B. Baker.

Cars.—The Tallahassee Railway Co., Tallahassee, Fla., will likely be in the market for cars. Address R. L. Bennett, superintendent.

Cotton-mill Machinery.—The Cumberland Mills, Cumberland, N. C., want a second-hand two-beater P. & A. Lapper, 30-inch. Address W. K. Parker, treasurer.

Cottonseed-oil Mill.—The Palestine Cottonseed Oil Co., Palestine, Texas, will buy machinery for a cottonseed-oil mill. Address H. L. Wright, secretary.

Cottonseed-oil Machinery.—The Houston Oil Refinery & Manufacturing Co. will want machinery for refining cottonseed oil and manufacturing its products. Address J. B. Baker, Houston, Texas.

Dredge.—The Florida Phosphate Co., Phosphoria, Fla., wants a one and three-quarter bucket for its dipper dredge, built by Bucyrus (Ohio) Steam Shovel & Dredge Co.

Dynamo.—The Tallahassee Railway Co., Tallahassee, Fla., will likely be in the market for dynamo. Address R. L. Bennett, superintendent.

Electric Railway Material.—The White Electric Line, 41 N. Broad street, Atlanta, Ga., is in the market for material, etc., to build and equip an electric railway five miles long.

Elevator.—Reinhardt & Thomas, Whitewright, Texas, may probably want machinery for an elevator.

Engine.—The Tallahassee Railway Co., Tallahassee, Fla., will likely be in the market for an engine. Address R. L. Bennett, superintendent.

Grist Mill.—W. J. Morgan, Stillmore, Ga., wants a grist mill.

Ice Factory.—Conway, Hogan & Co., Glasgow, Ky., wants proposals for a three-ton ice plant.

Hydrants.—A. R. Johnson, Marble Falls, Texas, wants ten two-and-a-half-inch double nozzle fire hydrants of standard make.

Lathe.—The Moffatt Manufacturing Co., Chester, S. C., wants to buy a pulley lathe, new or second-hand.

Locomotives.—A. C. Nowland, 146 N. Front street, Philadelphia, Pa., wants a 15-ton and 10-ton locomotive for three-foot gage (second-hand).

Lumber Mill.—W. J. Morgan, Stillmore, Ga., will want complete outfit for large lumber mill next September.

Matcher.—G. D. Mims, Edgefield, S. C., will want a matcher.

Piping.—A. R. Johnson, Marble Falls, Texas, wants estimates on 3000 feet of six-inch pipe, 3000 feet of four-inch pipe, 6000 feet of one-and-a-half-

inch pipe and 400 feet of one-and-a-quarter-inch pipe.

Planer.—G. D. Mims, Edgefield, S. C., will want a planer.

Planer.—The Davis Lumber Co., Davis Station, S. C., will likely want a planer.

Pump.—A. R. Johnson, Marble Falls, Texas, wants an 8½x10-inch duplex power pump complete in every detail.

Rails.—The Tallahassee Railway Co., Tallahassee, Fla., will likely be in the market for rails. Address R. L. Bennett, superintendent.

Rails.—A. C. Nowland, 146 N. Front street, Philadelphia, Pa., wants 400 tons of second-hand 30-pound rails and 400 tons of 20-pound rails. (See ad.)

Rails.—L. B. Cabell, Room 43, 17 Broadway, New York city, wants 1600 tons of 30-pound steel rails with all fastenings, or 1800 tons 36-pound with fastenings.

Saws.—W. J. Morgan, Stillmore, Ga., wants saws.

Saw.—The Alabama & Georgia Lumber Co., Montgomery, Ala., wants a second-hand, power-feed, rip or edging saw.

Separator.—W. R. Bailey, Greer's Depot, S. C., wants to purchase a separator.

Shaper.—G. D. Mims, Edgefield, S. C., will want a two-spindle shaper.

Standpipe.—A. R. Johnson, Marble Falls, Texas, wants estimates on a 12x120-foot standpipe made of 60,000 pounds tensile strength steel.

Stave Mill.—Boring & Wilson, Johnson City, Tenn., will purchase stave-mill outfit.

Surfacer.—G. D. Mims, Edgefield, S. C., will want a double surfacer.

Thread Gages.—The Erie City Iron Works, Erie, Pa., want a set of United States standard thread gages, internal and external, one-quarter to two and a-half inches, and standard pipe gages from three-eighths to two inches.

Tools.—The Steele Electric Manufacturing Co., Dallas, Texas, will shortly need lathes, planers and other machine tools.

Waste Machinery.—The Cumberland Mills, Cumberland, N. C., wants a machine for tearing waste in pieces. Address W. K. Parker, treasurer.

Water-wheel.—A. R. Johnson, Marble Falls, Texas, wants a water-wheel to develop 500 horse-power under a head of nineteen and a-half feet with 650 cubic feet of water per second.

Water Works.—The Cambridge (Md.) Water Co., Isaac S. Cassin & Son, engineers, 1404 N. 12th street, Philadelphia, Pa., will receive bids until May 18 for the construction of water works. (See ad.)

Water Works.—A plant will be constructed at Marble Falls, Texas. Address A. R. Johnson for particulars.

Wire.—The Tallahassee Railway Co., Tallahassee, Fla., will likely be in the market for trolley wire. Address R. L. Bennett, superintendent.

Woolen Mill.—J. A. Hughes, Centre Point, Ark., may want burring machinery soon.

Amos J. Hodges, of Woodville, Texas, wants pews for a church.

B. F. Stockdon & Bro., Staunton, Va., wants quotations on coil springs for light cars in sizes one-half inch round, three inches diameter and three inches long; also seven-sixteenths round, two and a-half diameter and two and a-half inches long.

Centenary Methodist Episcopal Church, Lynchburg, Va., wants a pipe-organ. Jas. W. Wray can inform.

C. J. Matthews, of Reidsville, N. C., wants quotations on cathedral and stained glass.

S. H. Thompson, of Scottsburg, Va., wants to correspond with manufacturers of chemical and philosophical apparatus.

## SOUTHERN FINANCIAL NEWS.

### New Banks.

Chattanooga, Tenn.—A savings bank department is to be added to the business of the Citizens' Bank & Trust Co.

Eau Gallie, Fla.—What is to be termed the State Bank has been organized at Eau Gallie with \$15,000 capital. John Aspinwall is president.

Fayetteville, N. C.—People's Bank has been sold to a syndicate headed by a Mr. Coffin. New bank has opened for business.

Huntington, W. Va.—George F. Miller succeeds George F. Miller, Jr., as vice-president of the First National Bank of Huntington.

Itasca, Texas.—Citizens' National Bank, capital \$60,000, organized with R. P. Eldridge, president; W. H. Webb, vice-president; E. E. Griffin, cashier. Expect to begin business August 15.

Knoxville, Tenn.—New bank will be opened about June 1 to be called the Market Bank.

Kyle Texas.—Dr. Parke, of Dornington, Pa., and others will start a bank at Kyle.

New Orleans, La.—The Southern National and Hibernia National Banks are to be consolidated at New Orleans. After May 25 the business of the two institutions will be transacted at the Hibernia Bank.

Rockwell, Texas.—A bank with \$50,000 capital is to begin operations at Rockwell about May 15.

St. Petersburg, Fla.—State Bank of St. Petersburg has been organized. John A. Bishop is president; Herbert Bishop, cashier.

Waycross, Ga.—Plans for organizing another bank are being perfected.

Americus, Ga.—The Bank of Americus, which suspended last January, will probably go into liquidation voluntarily.

Atlanta, Ga.—Venable Bros., of Atlanta, purchased the building of the suspended Gate City Bank for \$160,000. Understood they will use it for banking purposes.

Atlanta, Ga.—The city of Atlanta will vote on issuing \$182,000 in 4 per cent. water bonds to complete the water-works system. Election will be held May 16.

Augusta, Ga.—Directors of Irish-American Investment Co. declared 8 per cent. dividend, payable May 1.

Baltimore, Md.—The Seaboard & Roanoke Railroad Co. has just paid a semi-annual dividend to stockholders of 2 per cent.

Baltimore, Md.—The Pennsylvania Railroad has declared a semi-annual dividend of 2½ per cent., payable in cash, and an extra dividend of 2 per cent., payable in scrip.

Birmingham, Ala.—The Alabama Home Building and Loan Association has been chartered to loan money on real estate exclusively in Alabama. Its principal office is Birmingham.

Birmingham, Ala.—Yearly meeting of Alabama Bankers' Association will be held at Birmingham May 9, 10 and 11.

Charleston, S. C.—It is reported that the Finance Co. of Philadelphia has sold \$2,000,000 worth of Charleston, Cincinnati & Chicago bonds to a syndicate in that city.

Charleston, W. Va.—First National Building and Loan Association organized with Hon. W. E. Chilton, president; F. Gardner and Hon. J. D. Alderson, vice-presidents; A. C. Hall, secretary, and C. W. Young, treasurer.

Columbia, Tenn.—Second National Bank of Columbia has suspended. Had a capital of \$100,000 paid in.

Durham, N. C.—United Banking & Building Co. of Richmond, Va., have elected as officers of local board at Durham: J. T. Pinnix, president; W. H. Proctor, vice-president; E. C. Murray, secretary and treasurer; F. L. Fuller, attorney.

Florence, S. C.—Stockholders of Florence Loan & Investment Co. elected John P. Coffin, president; B. Rutledge, vice president; C. D. Bristow, secretary and treasurer.

Galveston, Texas.—Bonds of the Galveston, Harrisburg & San Antonio Railroad first mortgage 5 per cent. are being redeemed.

Little Rock, Ark.—B. W. Green has been appointed receiver of the First National Bank at Little Rock, to succeed Logan H. Roots.

Piedmont, W. Va.—The city has voted an issuance of \$45,000 of water-works bonds. The mayor can inform.

Raleigh, N. C.—The Raleigh Mills Co. has issued \$100,000 of 6 per cent. first mortgage bonds. The Commercial and Farmers' Bank of Raleigh will answer inquiries of investors.

Richmond, Va.—The Finance Trading Co. has been organized at Richmond for the purpose of dealing in commercial paper, also real and personal property. The capital is to be not more than \$100,000 nor less than \$2500, issued in \$100 shares. The officers are: Jackson Brandt, president; Howard Swineford, vice-president; Edward Hanewinkel, secretary and treasurer, all of Richmond. The company intends doing business in all parts of the United States.

Roanoke, Va.—Project for organizing a fire insurance company with \$300,000 capital in \$10 shares is being discussed. Meeting will be held to consider it May 4. Reported that \$140,000 stock has been subscribed.

Tampa, Fla.—The Florida Loan & Investment Co. has been incorporated with a capital of \$100,000 in \$100 shares. Its principal offices are at Tampa, Fla. R. W. Easley is president.

Such a large amount of securities has been deposited with Drexel, Morgan & Co., under the plan of Richmond Terminal reorganization, that the firm believes it will be accomplished.

Vicksburg, Miss.—The Electric Lighting & Transit Co. has issued \$200,000 6 per cent. bonds to build and equip an electric street railway system.

Among the many exhibits in the machinery line which will engage the attention of the visitor at the World's Fair, now in progress, there will be the improved box-nailing machinery shown by William S. Doig, of Brooklyn, N. Y., who has specially built three finely constructed and elegantly decorated machines of this kind for exhibition there. They have every improvement known in the construction of box-nailing machines, and are of the latest type made by him. There has been a distinct advance in the manufacture of machinery of this character, and that built by Mr. Doig, as will be seen after an examination of those at the fair, are in the front rank.

## TRADE NOTES.

The New York offices of the Ingersoll-Sergeant Drill Co. have been removed from No. 10 Park Place to the Havemeyer Building, Cortlandt and Dey streets.

The Walburn-Swenson Co.'s New York and Chicago addresses are now 944 Monadnock Block, Chicago, and Farmers' Loan & Trust Co. Building, 18 William street, New York.

The Lookout Boiler Works, Chattanooga, Tenn., is making additions to its shops on account of increased business. It is buying new tools and machinery to complete the plant.

J. C. Jones & Co., contractors, of Basic City, Va., have secured the contract to erect the new courthouse and jail at Manassas, Va. The plans were prepared by Teague & Mayre, architects.

J. G. TIMOLAT, who has been located at 59 South Fifth avenue, N. Y., has moved to numbers 88 and 91 on the same avenue. The business has increased so that it requires larger quarters.

RECENT sales by the Shipman Engine Co., Boston, Mass., were three six horse-power, four two horse-power and several one horse-power engines. They are to be used for operating corn grinders, printing presses, steamboats, sawing wood, etc.

THE Cortright Metal Roofing Co., of Philadelphia, Pa., is now making two sizes of its Victoria shingles, 7x10 and 10x14 inches. The new size, 7x10, is specially suited for ornamental bands, gable ends, etc.

THE American Ship Windlass Co., of Providence, R. I., has recently received orders for the Winter wharf drop from the Nantasket Beach Steamboat Co. and the Maine Central Railway Co. The wharf drops made by this corporation are coming into general use throughout the country.

J. W. TAYLOR, 608 Equitable Building, Atlanta, Ga., has just sold a 10x6x12 Smith-Vaile pump for the Clemson College, Calhoun, S. C., and a pair of 40-inch horizontal water-wheels to the Trion Manufacturing Co., of Trion, Ga. Mr. Taylor is Southern agent of Stilwell-Bierce & Smith-Vaile Co., of Dayton, Ohio.

THE Foster Machine Co., Westfield, Mass., has placed its coil and tube winders in a number of large mills during the past month. Among them are the Cohannet, the Mosket, Globe and the plants of the Sanford Spinning Co., Boston Manufacturing Co., Ruddy, National, Standard, Merrick and Hadley thread concerns.

THE Central Machine Works, Cleveland, Ohio, has completed a new power repress for making brick which weighs only 2000 pounds. At the Wickliff (Ohio) plant of the Buckeye Brick Co. one of the machines can be seen. The Central Machine Works is about to place on the market a second machine with a plunger or top die, which gives the brick a top pressure.

THE contract for roofing the mills of Messrs. Swift & Co. and the Consumers' Cotton Oil Co. at Houston and Waco, Texas, and at Little Rock, Ark., has been awarded Messrs. Smith, Peden & Co., of Houston. The material will consist of 250,000 square feet of asbestos fire-proof paper coated with asbestos fire-proof coating. This is said to be the largest roofing contract ever awarded to a Texas concern.

In the World's Fair exhibit of the Riehle Bros. Testing Machine Co., Philadelphia, Pa., will be a 300,000-pound vertical screw-power tester with electric screw beam, a 200,000-pound car-coupler tester, a tester arranged for links, pins and brake beams, and an 80,000-pound spring tester. The government will show a 200,000-pound screw tester and a 200-pound cloth tester loaned by the Riehle Bros. Testing Machine Co.

JOHN MASLIN & SON, of 165 and 167 First street, Jersey City, N. J., manufacturers of the pulsometer pump, offer free to the users of their pumps one of the new improved air valves which they have recently designed. This valve has no delicate parts, does not work loose and can be re-ground or repaired without removing from the pump, and can also be adjusted while the pump is in operation. Anyone desiring this valve can communicate with the makers, giving the size of pump.

THE lumbering business which has heretofore been conducted by Messrs. Reeder & Ritter two miles west of Welch, W. Va., on the Ohio extension of the Norfolk & Western Railroad, locally known as Upper & Lower Shannon branches, will hereafter be run by W. M. Ritter, who has bought out Mr. Reeder's interest. W. M. Ritter will employ about 100 men—fifty at his own mill on Upper Shannon branch and about the same number at W. J. Denman's mill, which he operates on Lower Shannon. These mills will manufacture yellow poplar, white oak and hemlock, the larger per cent. being poplar; daily output 30,000 feet.

THE Ahrens & Ott Manufacturing Co.'s plant for the manufacture of brass and iron goods, at

Louisville, Ky., covers five acres of ground. In 1888 but forty men were employed. At present 450 names are on the pay-roll earning \$4500 per week. A specialty of this concern is sanitary work and plumbers' ironware. They melt sixty tons of Southern iron daily, and make all sizes of wrought-iron pipe from one-eighth inch to twelve inches in diameter. In brass goods, pumps, hydrants and sanitary specialties are among the principal articles they turn out. The Ahrens & Ott Co. have an extensive trade which extends from Pittsburg to San Francisco, as well as the entire South.

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